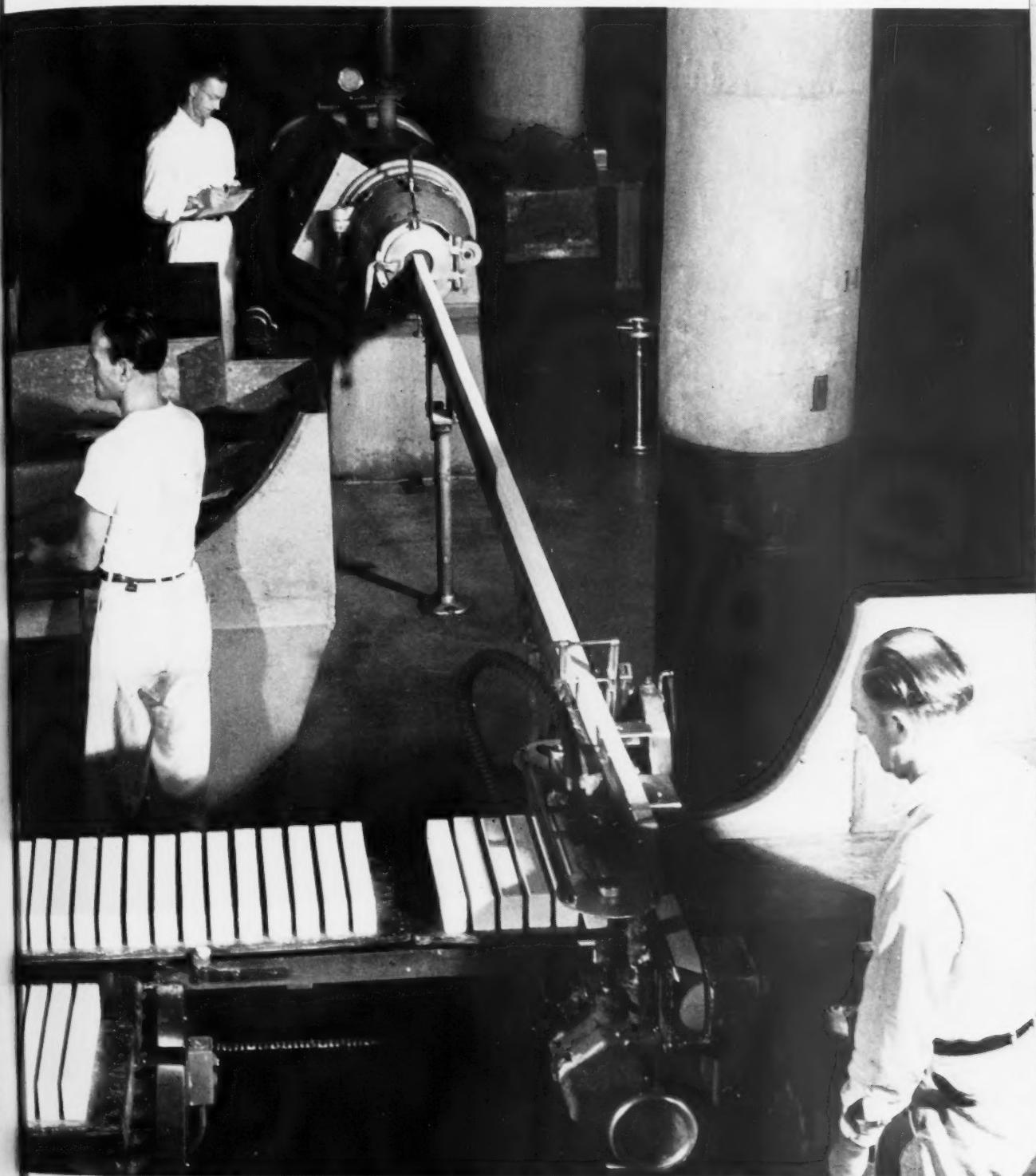


WESTERN INDUSTRY



• More people in the West, more soap. Extruded soap being cut into lengths in a Western plant. For details see page 5.

NOVEMBER
1950

VOLUME XV
NUMBER 11

- ✓ Piping easier than manual methods for moving 5 tons of material daily. p. 31
- ✓ Simple but adequate production control system speeds order delivery. p. 34

- ✓ Tell employees effectively that the company is their real benefactor. p. 36
- ✓ Know the quality of industrial waters before selecting plant facilities. p. 39

There's more to a Wirebound box than wood, wire and price!

Experience, adequate plant facilities and container know-how are essential to soundly engineered, dependable containers. Cabco has been making wooden containers since 1883. Facilities embrace everything from logging to the finished wirebound. Cabco is the West's recognized leader in designing, developing and supplying wooden shipping containers.



New 20-lb. Cabco wirebound "cradles" 150-lb. rolls of Kaiser Aluminum foil

Kaiser Aluminum & Chemical Corporation said: "Nothing must touch the surface of these 150-lb. rolls of aluminum foil. They must have 100% protection during travel and storage." So Cabco designers engineered a new kind of wooden wirebound container. A pair of crossed-grain double end pieces suspend the core on which the rolls are wound. Then an extra-strong Douglas fir and wire wrap-around binds the whole into a compact, easily handled, and extremely rugged container. Kaiser officials say the new Cabco wirebounds occupy less storage space, assemble more quickly, and weigh 40% less than comparable nailed boxes. Container durability is such that the Cabco wirebounds are regularly returned to Kaiser for re-use.

CABCO
CONTAINERS

A product of the California Barrel Company, Ltd.

Sold only through

DUFF CALIFORNIA CO.

100 Bush Street, San Francisco 4, California
2581 E. Eighth Street, Los Angeles 23, California
501 Dooley Building, Salt Lake City 1, Utah



This is but one of the many new industrial applications for Cabco wirebounds. Perhaps Cabco containers can increase the economy and convenience of your shipping operation.

**NO OTHER HAND TRUCK HAS
SO MUCH POWER - SO SHORT A TURNING RADIUS!
PLUS TWO POWER TYPES - GAS OR ELECTRIC**



CLARK
POWERED HAND TRUCKS

TURN
PAGE
FOR MORE
HAND TRUCK DETAILS

**CLARK EQUIPMENT COMPANY, INDUSTRIAL TRUCK DIVISION
BATTLE CREEK, MICHIGAN**

The NEW CLARK POWERED HAND TRUCKS

SHORTEST TURNING RADIUS — GREATEST POWER

with the
motor in the drive wheel



Send
for this
New Book



CLARK ELECTRIC AND GAS POWERED FORK TRUCKS AND INDUSTRIAL TOWING TRACTORS



INDUSTRIAL TRUCK DIVISION • CLARK EQUIPMENT COMPANY • BATTLE CREEK 67, MICH.
Please send me the new Hand Truck Booklet.

Name _____
Firm Name _____
Street _____
City _____ Zone _____ State _____

AUTHORIZED CLARK INDUSTRIAL TRUCK PARTS AND SERVICE STATIONS IN STRATEGIC LOCATIONS

TWO POWER TYPES

1

ELECTRO-LIFT

BATTERY POWER—ELECTRIC MOTOR DRIVE

New-type compound motor develops more power than any other hand truck . . . Economical consumption of power means longer work periods . . . Ample reserve power available when required . . . Automatic acceleration prevents abuse, provides smooth, fast "getaway" . . . Speed variations are slight with or without load—reducing operator fatigue . . . Soft, dynamic braking protects loads . . . Lift motor, pump, relief valve, check valve and sump in single compact unit . . . The only short truck with space for batteries up to and including 19-plate.

2

HYDRO-LIFT

GAS-ENGINE POWER—HYDRAULIC MOTOR DRIVE

Entirely new in the field of Materials Handling . . . 24-hour ramp service every day! . . . Hydraulic power infinitely smoother than any other type . . . Heavy-duty vane-type hydraulic units for continuous efficiency and long life . . . Effortless finger-tip reversal of direction . . . Automatic torque multiplication assures ample reserve power when needed . . . Hydraulic pump powers both drive and lift.

Compare CLARK machines with any and all others of their type! You'll find they excel because they give you:

- Shortest turning radius
- Shortest wheel base, giving better load distribution
- Greater underclearance to prevent "hanging up"
- Greatest accessibility for maintenance
- Reduced wear on rubber and floor because of larger (14") drive tire. This tire carries greater load, relieving burden on rollers
- Drive motor mounted in the wheel
- Compact, fully enclosed drive unit
- Lifting rams self-aligning and instantly accessible
- Rugged frame, and largest main carrier bearing
- Largest mechanical brake

The full story of these Clark Quality trucks, designed to give industrial users what they want, is told in a booklet that is yours for the asking. Just fill in the coupon, attach it to your letterhead and mail it.

PRODUCTS OF CLARK—TRANSMISSIONS • FORK TRUCKS & TRACTORS • AXLE HOUSINGS • GEARS AND FORGINGS • RAILWAY CAR TRUCKS • ELECTRIC STEEL CASTINGS • AXLES • TRACTOR UNITS

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Editorial Director
JAMES I. BALLARD

Editor
A. C. PRENDERGAST

Managing Editor
JAMES E. HOWARD

Washington Editor
Arnold Kruckman

Consulting Technical Editor
C. LLOYD THORPE

Consulting Editor
Electricity and Electronics
ROY C. HENNING

Editorial Assistant
CICELY M. NELSON

*

Correspondents

Sterling Gleason
946 Lucile Avenue,
Los Angeles 26, Calif.

Henry W. Hough
1151 Humboldt Street
Denver 6, Colo.

O. N. Malmquist
c/o Salt Lake Tribune
Salt Lake City 1, Utah

L. E. Thorpe
209 Seneca Street
Seattle 1, Wash.

*

District Offices

NEW YORK OFFICE
Franklin B. Lyons, District Manager
Weston Road, Georgetown, Conn.
Telephone Georgetown 374

CLEVELAND OFFICE
Richard C. Burns, District Manager
7708 Deerfield Dr.,
Cleveland 29, Ohio
Telephone TUxedo 5-1848

CHICAGO OFFICE
A. C. Petersen, District Manager
3423 Prairie Ave., Brookfield, Ill.
Telephone Brookfield 532

SAN FRANCISCO OFFICE
V. C. Dowdle, District Manager
609 Mission St., San Francisco 5, Calif.
Telephone YUKon 2-4343

LOS ANGELES OFFICE
Jerome E. Badgley, District Manager
1228½ So. Bronson Ave., Los Angeles 19
Telephone REpublic 2-3125

WASHINGTON OFFICE
Arnold Kruckman, Washington Editor
1120 Vermont Ave., N.W.
Washington 5, D.C.
Telephone District 8822

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Arthur F. King President
James I. Ballard . . Vice President
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V. C. Dowdle . . Advertising Mgr.
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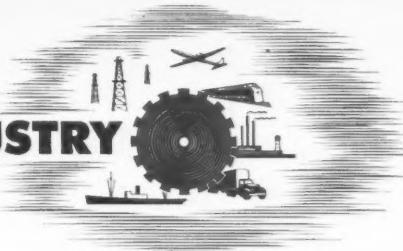
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WESTERN INDUSTRY



VOLUME XV

NOVEMBER · 1950

NUMBER 11

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Ancient Atomic Energy

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Front Cover

Census of Manufactures shows value added by manufacture over cost of raw materials in California's soap industry in 1947 was \$40,639,000. Scene shows extruded soap from mixing machine being cut into lengths while still warm and spongy at Proctor & Gamble's Long Beach, California factory.

Physical culture course for steel

To make steel stronger or to make it more workable or to make it unusually hard—or to give it any of scores of other physical properties—it must undergo a variety of painstaking processes.

And to make certain each customer gets exactly the quality he needs, Kaiser Steel produces a wide range of carbon and alloy steels.

Each must undergo scores of tests, analyses and other quality control checks to make sure it meets specifications on every count.

This extreme care to satisfy customer requirements is another reason why the West's only integrated, *independent* steel plant is bringing more industry, more jobs, more wealth to the West!

It's good business to do business with



built to serve the West



PROMPT, DEPENDABLE DELIVERY AT COMPETITIVE PRICES • plates • continuous weld pipe • electric weld pipe • hot rolled strip • hot rolled sheet • alloy bars
carbon bars • structural shapes • cold rolled strip • cold rolled sheet • special bar sections • semi-finished steels • pig iron • coke oven by-products
For details and specifications, write: KAISER STEEL CORPORATION, LOS ANGELES, OAKLAND, SEATTLE, PORTLAND, HOUSTON, TULSA, NEW YORK

FRUEHAUF *"Unit-Built"* VAN BODIES

NOW AS LOW AS \$622.00

taxes extra

Typical of the outstanding buys at Fruehauf Branches today is this 12-ft. all steel, straight-frame body. Now yours complete—mounted on chassis, painted to match cab—ALL FOR ONLY \$622 (taxes extra).



FRUEHAUF
ELEVATING
END GATE
NOW AS LOW AS \$378*

The time-saver
that makes one man
a complete crew!

*freight, taxes and installation extra

HERE'S the finest load handling "team" you can find today—a handsome all-steel, "Unit-Built" Van Body with a rugged hydraulic-powered Elevating End Gate. Both are Fruehauf built—designed to operate together as an efficient load handling unit.

A portable loading dock itself, Fruehauf's versatile Elevating End Gate speeds up pick-ups and deliveries by putting the power that pulls your truck to work loading and unloading it, too. Your driver, at the touch of a lever, becomes a complete loading crew.

For the load handling "team" best fitted to your need, see your Fruehauf Branch. Remember, Fruehauf builds Truck Bodies for every business requirement.

World's Largest Builders of Truck-Trailers

FRUEHAUF TRAILER COMPANY

Western Manufacturing Plant, Los Angeles

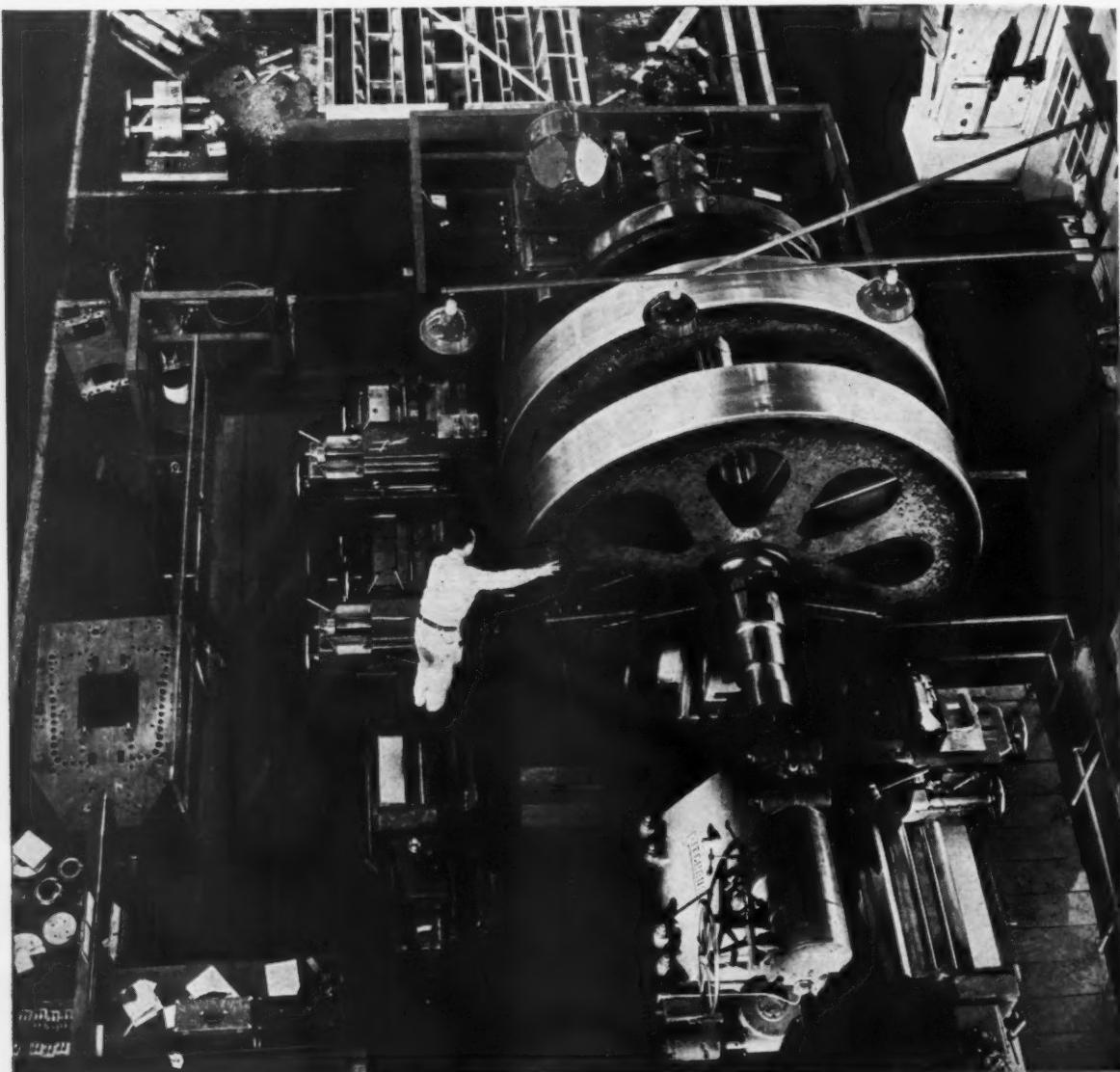
Sales and Service: Los Angeles • San Francisco • Portland • Seattle
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FRUEHAUF

Truck Bodies

READY FOR THE ROAD IN A MATTER OF HOURS

YOU CAN BE **SURE**.. IF IT'S
Westinghouse

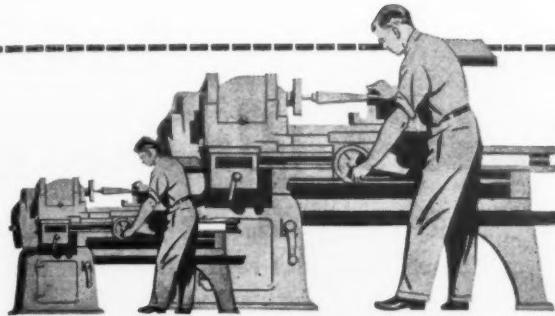


MACHINERY... MADE IN THE WEST, FOR THE WEST

High on the list of fast-growing Western industries is machinery manufacturing. In eight years, the number of plants doubled, employees tripled, and productive value jumped 4½ times!

Westinghouse became a leading factor in this zooming industry in 1947 with the acquisition of Joshua Hendy's plant at Sunnyvale, California. One of the biggest plants in the West, Sunnyvale produces giant gears for Western shipbuilding

(see above), hydraulic valves and gates for power plants, plus a diversified array of electrical equipment. The equipment at Sunnyvale is superb. The 25-ton gears shown above, for example, are actually built to watch-like accuracy with tolerances as close as *three ten-thousandths* of an inch! Sunnyvale and seven other Westinghouse plants produce *in the West, for the West*—cutting freight costs, boosting income, pushing Western growth.



WHY HAS WESTERN INDUSTRIAL OUTPUT JUMPED *3½ Times* SINCE '39?

The Census of Manufactures shows it. In 1939 the productive effort of Western industry, value added by manufacture, was 1.8 billion dollars. The 1947 figure: 6.4 billion. While the rest of the U. S. gained 199%, Western output jumped 252%!

Why has industry grown so much faster in the West? Mainly because it's a rich market area with abundant raw materials, low-cost power, and a vigorous population. And a big result of this industrial growth is that it generates capital to finance *still more* new industry. For example, total personal income in the West grew from 9½ billion in '39 to 33 billion in 1949!

One of the leading factors in the growth of Western

industry has been the Westinghouse organization. Our eight Western plants in themselves represent a big slice of production capacity. And even more important, these plants produce goods vital to the expansion of *all* Western industries. Much of the power generating apparatus that makes industrial growth possible was engineered by Westinghouse. And at delivery end of the power line, Westinghouse equipment helps Western industries get the most *out of* this power.

Westinghouse has long been in the West. We know the problems; we have a stake in the future. Your Westinghouse office is a good place to go for help in getting the most out of power.

J-94835

Westinghouse
A MAJOR FORCE
IN WESTERN GROWTH

PLANTS AT BERKELEY, DENVER, EMERYVILLE, LOS ANGELES, PORTLAND, SALT LAKE CITY, SEATTLE, SUNNYVALE

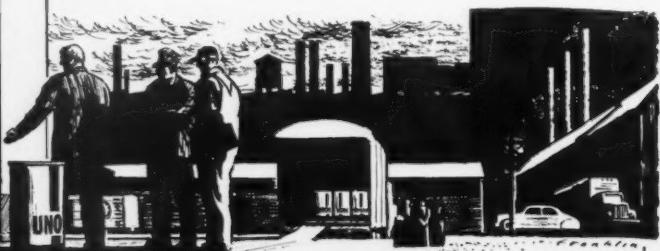
November, 1950—WESTERN INDUSTRY

UNOBA SIMPLIFIES LUBRICATION



Manufacturers save time and money with the multi-purpose grease that resists both heat and water

Multi-purpose UNOBA grease has proved itself in many types of industrial plants. For one example, a California manufacturer used centrifugal pumps to transfer commercial acids heated to temperatures as high as 390° F. Correct lubrication of pump bearings was a problem.



Yet UNOBA performed beyond expectations—completely eliminating the problem of bearing failures. Now this firm* uses UNOBA for general lubrication throughout its entire plant, accounting for a tremendous saving on maintenance and materials over the years.

*Name available upon request.

Just what is UNOBA? Union Oil's exclusive UNOBA is a barium base grease that resists both heat and water. It sticks to metal surfaces with a tenacity that boiling water can't break! And it gives thorough protection at temperatures from below freezing to over 300° F.



Because of this flexibility, UNOBA simplifies lubrication. It performs on jobs formerly requiring many different types, grades and brands of grease. This results in reduced inventories, smaller storage space, less chance of using the wrong lubricant, and lower maintenance costs to you.

For full information, call your local Union Oil Representative, or write Sales Department, Union Oil Company, Los Angeles 17, California.



**UNION OIL
COMPANY
OF CALIFORNIA**

Steel Problems?



Call Jorgensen First

BE FARSIGHTED! If you are having difficulty finding the steel you need, try Jorgensen. Remember that Jorgensen endeavors to maintain *complete* stocks of carbon, alloy, stainless, tool and specialty steels. Emergency

demands may result in temporary shortages of some items, but over-all stocks are still large, and acceptable alternates are usually available. You'll be headed in the right direction when you **CALL JORGENSEN FIRST!**



EARLE M. JORGENSEN CO.
STEEL

OAKLAND 1657 W. Grand Ave. Higate 4-2030	SAN FRANCISCO Ask Operator for Enterprise 10942	DALLAS 2200 W. Commerce St. Riverside 1761	HOUSTON 5311 Clinton Dr. ORchard 1621	LOS ANGELES 10650 S. Alameda LUcas 0281
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The finish that introduced the furnace into playroom society

Problem: Design a mar-resistant, heat-resistant finish for furnace jackets that would fit in with modern rumpus rooms, make furnaces as colorful and attractive as furniture.

Solution: Industrial Finish Engineers developed special finishes in striking colors. These finishes resist heat, scratching and marring, are easier to keep clean. They go on quickly, dry faster. Their beauty has helped increase sales.



What industrial finish means to sales!

Here is a paragraph from a letter received from one of the largest furnace manufacturers in the country:

"We believe that the finish of our product is of great importance, because that is the part that people see. It plays a great part in selling customers on your product."

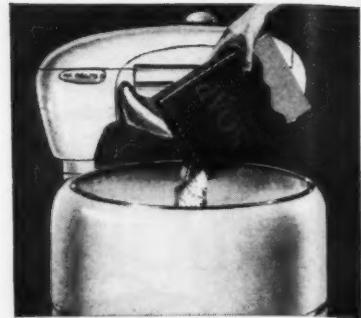
We repeat, this is one of the country's largest furnace manufacturers.

A part of their success is due to Industrial Finish Engineering. Find out today how it can increase the saleability, lower production costs of your product.

The industry has technical ability to make finishes to suit your specific requirements. Remember, more and more of your customers start buying with the finish in mind.

The better the finish - The better the buy!

© 1950, NATIONAL PAINT, VARNISH AND LACQUER ASSOCIATION, INC., WASHINGTON, D. C.



Problem: Find a finish for washing machines that would not be affected by soap and washing powders.

Solution: Industrial Finish Engineers developed special finishes that resist soaps, washing powders and hot water. These quick-drying and baked finishes can be applied after assembly, speed production, cut costs.



Problem: How to equip toy plastic cars with authentic-looking chrome bumpers, without upsetting production.

Solution: Industrial Finish Engineers developed a finish that will not attack the plastic—dries in one minute for continuous production. It improves saleability, keeps costs down.



Problem: How to eliminate the expense of spraying an undercoater over the stain on juvenile furniture.

Solution: Industrial Finish Engineers developed a dip method that used a heavily built-up stain. Result—production savings; a final finish equal in quality to the original method.

U. S. FLEX Chooses BUTLER Buildings



Butler Building used as warehouse and office by Seattle branch of U. S. Flexible Metallic Tubing Co. Note specially adapted front and sidewalls.

... for These Outstanding Features

**FROM LOS ANGELES, F. A. McDONALD,
General Manager, U. S. Flexible Metallic Tubing Co.,
Writes . . .**

"A number of oil company engineers have complimented us on the appearance of our Seattle Butler Building, and several mentioned interest in this type building for their own storage and operation facilities. All agreed that the building was entirely practical for our type industry, which is a combination of warehousing, sales and service.

"A report received from our Seattle manager states that our building went through a storm of hurricane proportions which hit the Northwest, without a leak or visible signs of other damage.

"Our Seattle members are very happy to be in the new location and our other branches are anxious to have a duplicate set-up in the respective cities."

The U. S. Flex Co.'s Seattle building was occupied just one month after foundation work was begun!

- Speedy Erection ● Dependable Service
- Attractive Appearance ● Complete Adaptability



Interior view of U. S. Flex warehouse shows full usable space provided by Butler Buildings.

For a Butler Building to Fit Your Needs, See Your Butler Distributor, or



**BUTLER
MANUFACTURING
COMPANY**

RICHMOND, CALIF.
KANSAS CITY, MO.
GALESBURG, ILL.
MINNEAPOLIS, MINN.

Mail This Coupon TODAY!

Address Dept. WI 211
Richmond, Calif.

Send full information about Butler Buildings

for use as _____

Name _____

Firm _____

Address _____

City _____ Zone _____ State _____

WESTERN INDUSTRY

Take a look NOW... Plan to be in our ANNUAL REVIEW AND FORECAST ISSUE

Out January 10. Final forms close December 10.



What has happened in the industrial West during 1950?

What is the outlook for 1951?

What effect will these developments have on Western production and marketing plans?

No one has all the answers, but WESTERN INDUSTRY's January ANNUAL REVIEW AND FORECAST certainly will provide some guide posts.

EXTRA ADVERTISING VALUE FOR YOU

If your products or services are used by industry in the West—then you belong in our January ANNUAL REVIEW AND FORECAST issue. It is firmly established and regarded as authoritative by the West's top management and production men. It is aimed at 9,000 men who actively *manage* and *buy* (specify and approve purchases) for Western plants. The issue will have permanent reference value—a bonus for all advertisers.

EDITORIAL PLANS

1 Industry-by-Industry Summaries and Trends—Once again our editors will review the principal industries of the West. These reviews will present production figures; summarize significant manufacturing, processing and equipment developments of the year; forecast trends; on a State by State basis. Here are specific industries we expect to cover:

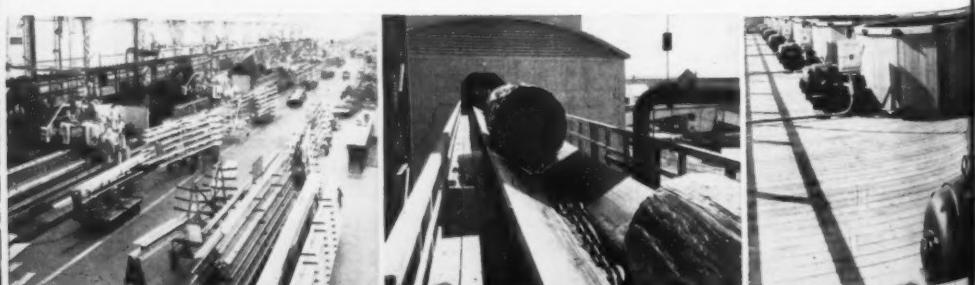
Metals	Gas	Aircraft	Sugar	Plastics
Iron and Steel	Coal	Canning and Packing	Furniture	Automobile assembly
Aluminum	Electric Energy	Fruit and vegetable	Rubber	automobile parts
Copper	Lumber	Fish canning	Motion Pictures	Apparel
Chemicals	Plywood	Frozen foods	Electronics	Glass
Petroleum	Pulp and Paper	Flour	Ceramics	Cement

2 World Situation and the West—Population and production capacity in the West gained tremendously during World War II. WESTERN INDUSTRY will cover that growth, and point out the industrial and economic developments likely to follow as a result of present world conditions.

3 Analysis of Western Production Facilities and Natural Resources.

4 The Import of 1950 Census Figures for the West.

5 Comments by Business Leaders—What to look for in 1951, according to the views of top management in the West.



Start Your 1951 Advertising Schedule With Dominant Space in This Issue!

FAN MAIL

"Beyond and aside from your Annual Review and Forecast issue, my best wishes for continued success in the splendid work that your publication is doing for Western industry and business."

Walther Mathesius, President
Geneva Steel Corporation
United States Steel Corporation Subsidiary

"May I congratulate you on the excellence of WESTERN INDUSTRY. I could offer no suggestions for improving the caliber of your editorials, as to my knowledge they have always been constructive, varied, and of general interest."

Louis Buchman, General Manager
Utah Copper Division
Kennecott Copper Corporation

"Your January Annual Review and Forecast issue is an excellent résumé of the actuals and potentials of Western industry. I am circulating this issue to the vice-presidents in charge of our four major product divisions, so that they may see the opportunities that lie in the Western states."

J. P. Margeon, Jr., Executive Vice-President
International Minerals & Chemicals Corporation

"I have examined with great interest, the Annual Review and Forecast issue of WESTERN INDUSTRY. There can be no question but the information and data presented in this number give striking evidence of the tremendous growth which is taking place in the West."

I. W. Wilson, Senior Vice-President
Aluminum Company of America

"I think your Review and Forecast Number is without question one of the most complete and comprehensive editions I have seen presenting information of interest to all industries. I assure you that we shall use your publication as a valuable guide and reference.

F. M. Hawley, President and General Manager
Morse Chain Company, Detroit

"Perhaps you would be interested in learning that we will be able to use information from this fine periodical for an editorial in a company magazine just being started, besides making us feel that we are 'keeping our fingers' on what is happening in the eleven Western states."

C. E. Kuster, Terminal Manager
C-Transcon Lines, Los Angeles

"As an indication of the value we place upon your Annual Review and Forecast Number, I think you will be interested to know that we have ordered copies of the magazines for each of the resident managers of our mills and converting plants."

R. G. Shepherd, Executive Secretary to the
President
Crown Zellerbach Corporation, San Francisco

"We have never been disappointed. Our Western business has grown with the West. For this reason we naturally were interested in your 'Annual Review and Forecast' number. It convinces us once again that our faith in Western business is justified and our investment there is a good one. Your 'Annual Review and Forecast' does a fine job of serving your readers."

Charles R. Tyson, President
John A. Roebling's Sons Company, Trenton

"Mr. Lawson and members of his staff rely on *Western Industry* to keep abreast of developments in their area, and from time to time refer special articles to New York."

P. P. Pratt, Assistant to Vice-President
Manufacturing and Engineering Department
General Foods Corporation

Plan your 1951 schedule to include *Western Industry*'s 2 other special issues: March, Metals number; and August, Materials Handling and Packaging number.

WESTERN INDUSTRY

609 Mission Street, San Francisco 5, California • YUKON 2-4343

DATA UNITS AVAILABLE

- WI-1—NIAA Sales Presentation
- WI-2—How to Determine Editorial Effectiveness
- WI-3—Helpful ABC's for Exhibitors at Trade Shows, etc.
- WI-4—The Industrial Market of the West
- WI-6—Your Added Market in the West for the Next 10 Years
- WI-7—1949 Editorial Index of Articles
- WI-8—How to Make Your Product One of the 2.7 Considered by Each Buyer

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Telephone Georgetown 374

CLEVELAND—Richard C. Burns, Mgr.
7708 Deerfield Drive, Cleveland 29, Ohio
Telephone TUXedo 5-1848

CHICAGO—A. C. Petersen, Mgr.
3423 Prairie Ave., Brookfield, Ill.
Telephone Brookfield 532

SAN FRANCISCO—V. C. Dowdle, Mgr.
609 Mission St., San Francisco 5, Calif.
Telephone YUKON 2-4343

LOS ANGELES—J. E. Badgley, Mgr.
1228½ S. Bronson Ave.,
Los Angeles 6, Calif.
Telephone REPUBLIC 2-3125

FULL EFFECTIVE COVERAGE

Excerpts from letters to us about our 1950 Annual Review and Forecast give you an idea of the recognition it received . . . and we believe the 1951 issue will be even better.

No other magazine, Western or national, will cover so completely industry in the West. It will be packed with information that buyers in this fast-growing market want and need. So don't miss it. Tell your sales story to this important market by reserving space NOW for *Western Industry's* January ANNUAL REVIEW AND FORECAST issue.

For best position, state advertisement size, and whether color or bleed. Remember, forms close December 10.

NO INCREASE IN RATES

While the January number is sure to have extra interest for readers (and for you) our regular rates apply, as shown here:

ADVERTISING RATES

(Based On Total Bulk Space Used in 12 Months)

Full Page Space	24 pages or more	\$185.00 per page
	12 to 23 pages	200.00 per page
	6 to 11 pages	225.00 per page
	3 to 5 pages	240.00 per page
	Less than 3 pages	255.00 per page

Fractional Space	1 time	6 time	12 time
2/3 page	\$170.00	\$160.00	\$150.00
1/2 page	127.50	120.00	112.50
1/3 page	85.00	85.00	80.00
1/4 page	63.75	63.75	60.00
1/6 page	42.50	42.50	42.50
1/8 page	31.00	31.00	31.00

Color Charges	1 page	2 pages facing
Red, orange or yellow	\$55.00	\$80.00
Other colors	65.00	90.00
Metallic colors	70.00	95.00

Bleed Borders	20% extra	15% extra
Bleed top, bottom or outside	20% extra	15% extra
Gutter bleed	No charge	No charge

Inserts
Inserts billed at earned black and white page rate. No extra charge for backup either single leaf or spread (4-page form).

Composition—No charge.

Preferred Positions (Non-cancellable).

Page facing second cover	10% premium
Page facing contents page	20% premium
Page facing first editorial	20% premium
Page facing first reading	20% premium
Any guaranteed regular position (other than preferred)	10% premium

NOTE: Island ½-page positions (4½" x 7½") cost 20% extra.

Write for availability of cover positions and rates.

CASH IN ON THIS MARKET NOW!

To sell profitably to this market, and keep it sold, put *WESTERN INDUSTRY* on your national schedule NOW!

WESTERN INDUSTRY

609 Mission St., San Francisco 5, Calif.

Yes, I want

- to reserve pages in January, 1951 Annual Review and Forecast
- additional data on *Western Industry*, its circulation and editorial content; its market.
- a copy of 1950 Annual Review and Forecast issue.

Name..... Title.....

Company.....

Street.....

City..... Zone..... State.....



Clear Field ahead!

Opening the way for the ball carrier requires 100% teamwork, with every man knowing and doing his job. It's very much like getting your freight shipment through without interruptions and delays.

That's where it pays to have the proper facilities, manned by experienced men, such as Union Pacific's classification yards.

At these yards, freight cars are sorted and grouped (or classified) according to their respective destinations. Modern equipment and methods cut switching and sorting time in half.

This is one phase of efficient operation whereby the way is cleared for your freight to proceed rapidly to its destination.



BE SPECIFIC: *Ship UNION PACIFIC*



This illustration of Anaconda Die Pressed Forgings is full size and has not been retouched.

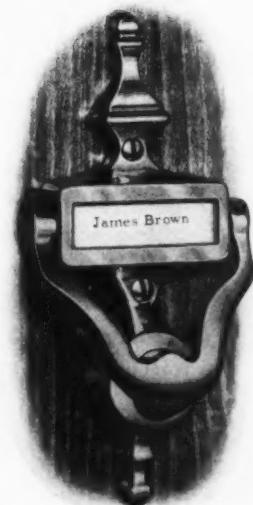
NuTone, Inc., OF CINCINNATI, ONE OF THE WORLD'S LARGEST MANUFACTURERS OF DOOR CHIMES, SAYS:

"When we used brass sand castings for these parts, long and costly buffing was required. But these Die Pressed Brass Forgings changed all that. They are amazingly easy to machine ... and polish to a high gloss with a minimum of buffing".

You'll hear the same story wherever a comparison is made. That's because Anaconda Die Pressed Forgings are solid, dense-grained, twice-wrought metal—with double the strength of ordinary sand castings. Forged in dies, they have die-like dimensional accuracy, die-like surface texture that minimizes finishing costs. Publication B-9 goes into detail, telling how, when, why and where. Write for your copy today. Address, The American Brass Company, General Offices, Waterbury 20, Conn., in Canada, New Toronto, Ontario.

BB102

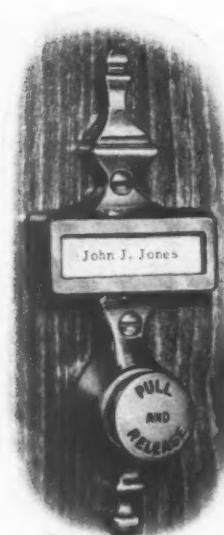
NuTone Solid Brass Door Knocker using the two Die Pressed Forgings illustrated above.



®



NuTone Electric Push Button using same face plate and requiring only a drilled hole in the cored boss and a brass-faced push button.



NuTone Mechanical Door Chime. Same face plate forging is used here, too. The pull and release knob is also a Die Pressed Forging with depressed lettering. Tone-bar and practically all other "behind the door" parts are made of Anaconda Brass.

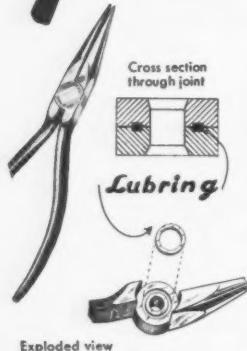
DIE PRESSED FORGINGS

NEWS FROM UTICA

Pioneering and improvements it will pay you to know about

1

PLIERS WITH BUILT-IN LUBRICATION . .



The finest pliers—the LUBRING line—have a ring of oil-impregnated porous iron floating in the joint. The ring slowly feeds lubrication and assures smooth action, long life. Standard equipment for several top utilities.

2

NEW SAFETY AND COMFORT IN SPECIAL HANDLES

Heavy rubber vulcanized handles for insulation—slip-on plastic handles that are non-burning, non-explosive—dipped plastic handles for comfort—handle springs for ease in use. For almost all UTICA tools.



3

WRENCHES THAT LAST TEN TIMES AS LONG . .

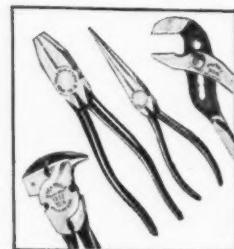


Adjustable wrenches with electronically hardened jaw surfaces. Resist burring and nicking. Last up to 10 times as long. Their thin pattern was designed to reach the hard-to-get-at places—with plenty of strength!

4

80 TOOLS . . 151 SIZES. THE RIGHT TOOL FOR YOUR NEED

You get exactly what you want from UTICA! A full line of pliers and adjustable wrenches. Every tool checked in every step of manufacture, and tested. For long-run economy in your production line.



Utica Drop Forge & Tool Corporation, Utica 4, N. Y.

BETTER PLIERS FOR EVERY PURPOSE

It pays to use

AND THE WORLD'S

BEST

TI

CA

quality tools

TOOLS

ARE MADE IN U. S. A.

IN OUR MAILBOX

Management Alerted

Editor, Western Industry:

The article on Labor Cost Control in the August issue of *Western Industry* was very interesting to me. I am sure that those who read the article will recognize the necessity of maintaining accurate controls in the manufacture of western products in order to be on a competitive basis with eastern products.

The fact that labor cost controls are apparently less evident in western industry than in the east may be attributable to several reasons. The most important probably are less competition with eastern products at the present time, the heavy demand for goods during the past ten years with consequently higher prices, and more substantial profits than are usually realized in a highly competitive economy.

Alerting management through articles of this kind should render a useful service to industry in the West.

F. RAY FRIELEY, Comptroller
Geneva Steel Corporation,
Geneva, Utah.

* * *

Management Grateful

Editor, Western Industry:

Congratulations on a fine job in your August issue on the steps which industry should take in preparing for a war economy. Particularly well presented, we felt, was the section entitled "Your War Job—First Things To Do" where you list some twenty-five steps which should be taken.

This section is so well presented that we should like to obtain your permission to reproduce the twenty-five points (with due credit, of course, given to *Western Industry*) and distribute the information to our various branch offices.

M. W. OSBORNE, JR.,
Manager, Advertising, Publicity,
Technical Data Service,
B. F. Goodrich Chemical Company,
Cleveland, Ohio.

* * *

A Mere Suggestion

Editor, Western Industry:

Now that the government needs money so badly, perhaps it would be a good idea to transfer to more useful sources some of the tax payers' hard-earned cash hitherto apportioned to the Government Printing Office for the publication of books, papers, magazines and pamphlets, the importance of some of which are more apparent than in others. Surely there can be no harm in eliminating such printed matter as:

"How to Tell the Sex of a Watermelon."
"Estimating Muskrat Population by House Counts."
"Mist Netting for Birds in Japan."
"Habits, Food and Economic Status of the Band-Tailed Pigeon."
"A New Name for the Japanese Blue Magpie."
And last but not least:
"Fairy Tales from Korea"!!
The last is no fairy tale, brother!!!

H. THOMAS, Public Relations,
General Plant Protection Company,
Los Angeles.

EDITORIAL COMMENT

The Unpolitical Kilowatt

IT IS beginning to be learned in the West that a kilowatt has no politics. For some years the federal government has been proclaimed as the good fairy whose wand would produce kilowatts cheaply whenever and wherever needed, thus saving the area from the shortsightedness of ordinary citizens who would either make a big killing out of selling kilowatts and securities, or else provide the kilowatts too late if at all. Now it becomes apparent that kilowatts don't recognize fairy wands when they see them.

The immediate example is the Pacific Northwest, where the federal government is either building, or proposing to build, many multi-purpose dams to provide hydro-electric power among other things. Private enterprise has been relegated to a minor role in the generation of hydro power, and steam power will continue to be too expensive unless the arrival of natural gas provides a cheaper BTU. But the governmental program attracted large electro-chemical industries, notably aluminum reduction, into the area without the needs of other industries being foreseen.

As a result the aluminum industry is consuming 43% of the electric energy, and under conditions of power shortage which may last until 1958 winter brown-outs may be a yearly affair. Furthermore, it has become impossible to attract other new industries requiring any sizable power load. You can't blame the aluminum producers; they were looking for cheap kilowatts and the government dished the kilowatts out on a silver platter. But the fact remains that the aluminum reduction industry is virtually a temporary millstone around the neck of the Northwest's economy as far as opportunity for industrial growth is concerned.

If the government decides to give aluminum users preference in the consumption of power because of the need for aluminum in the national armament program, the situation will become still worse. The Western Group of the Northwest Power Pool, composed of both public and private utilities, has asked the National Security Resources Board to see that an adequate system of priorities be set up which insures sustaining the whole economy of the region. Their action is to be highly commended, and if the government has taken over as a federal prerogative the generation of hydro-electric power, it should assume the responsibility for all the consequences which may ensue. In this case we believe it should mean expediting the completion of the hydro-electric projects it has undertaken.

But in the long run we believe the economy would be better served by allowing private enterprise, or efficient and responsive local publicly-owned utilities like Tacoma City Light and Los Angeles Water & Power, to undertake the development of hydro power under alert governmental regulation. We believe they would be more sensitive to the needs of the entire community, more alive to future possibilities and less likely to go off on wild tangents.

Ancient Atomic Energy

ATOMIC ENERGY has not shaken the twentieth century a whit more than fire did the first human who discovered that he could control it for his own use, according to H. A. Winne, G-E vice president, in explaining atomic energy in a-b-c-fashion to the California Manufacturers Association. But the discoverer of fire didn't have to sign any non-communist oaths. Or did he?

More CRANE VALVES are used than any other make



Crane "Pulsator" test of check valve endurance. By continuous sudden reversals of air pressure, valve discs are slammed open and shut at rates up to several hundred cycles per minute.

How Many Checks in a Good Check Valve?

You don't buy them that way, but that's what finally determines the value of check valves in your pipe lines. That's why Crane is so completely equipped for accurately pre-testing valve performance. For instance, "wearability" of check valves is tested by opening and closing the valves continuously on various fluids under conditions of actual service. Special equipment is used to accelerate these tests to equal many years' service in a short period. Countless tests like this—of materials, designs, and finished products—insure the superior performance values that mean lower piping costs for users of all Crane valves and fittings.



This new regrinding Brass Swing Check design typifies Crane's continuing product development for better valve performance, lower piping maintenance costs. For increased flow capacity . . . for fast, positive closure on backflow . . . for easier servicing without removing valve from line . . . get a demonstration of these 200 and 300-Pound Y-Pattern Check Valves. Phone your Crane Representative, or ask for literature.

CRANE VALVES

CRANE CO., General Offices: 836 S. Michigan Ave., Chicago 5, Ill.
Branches and Wholesalers Serving All Industrial Areas

VALVES • FITTINGS • PIPE • PLUMBING • HEATING

CALENDAR OF MEETINGS

Nov. 15-18—National Paint, Varnish, & Lacquer Association, at San Francisco. Contact Jos. F. Battley, Pres., 1500 Rhode Island Ave. N. W., Washington 5, D. C.

Nov. 16-17—National Industrial Traffic League. St. Francis Hotel, San Francisco.

Nov. 27-28—Pacific Northwest Trade Association, at Olympic Hotel, Seattle, Washington. Contact D. C. Knapp, Executive Secretary.

December 4-5—Northwest Frozen Foods Association, at Multnomah Hotel, Portland. Contact E. M. Burns, BR. 7074, Northwest Frozen Foods Association, Title and Trust Bldg., Portland.

December 7-9—Oregon Motor Transport Assn. state meeting at Multnomah Hotel, Portland. Contact James Sharkey, Weatherly Bldg., WE 4105.

Dec. 27-29—Northwest Scientific Association, regional meeting at Hotel Davenport, Spokane, Washington. Contact L. C. Cady, University of Idaho, Moscow, Idaho.

1951

Feb. 8-10 — Sierra-Cascade Logging Conference, at Redding, Calif. Contact conference president Robert Grimmett, Pine Logging Co. of Calif., Fresno.

February 9-10—Oregon State Bottlers Assn. state meeting at Benson Hotel, Portland. Contact M. B. Ruvinsky, Mt. Hood Beverage Co., AT 2823.

Feb. 13-14—Washington Bottlers of Carbonated Beverages, state conference at Hotel Davenport, Spokane, Washington. Contact Dave Allen, Jr., 714 American Bank Bldg., Seattle.

Feb. 26—March 2—5th All-Industry Frozen Foods Convention, at St. Francis and Palace Hotels, San Francisco. E. J. Watson, chairman.

March 6-7—National Marketing Conference, sponsored by U. S. C. of C., and hosted by San Francisco and Oakland C. of C., at St. Francis Hotel, San Francisco. Contact Dunlap C. Clark, Central Bank, Oakland.

March 12-14—Northwest Canners Association, regional meeting at Hotel Davenport, Spokane. Contact Mr. Tulley, Board of Trade Bldg., Portland.

March 29-30—West Coast Lumbermen's Assn. regional meeting at Multnomah Hotel, Portland. Contact H. V. Simpson, 1410 S.W. Morrison St., CA 1691.

March 30—Western Frozen Food Processors Assn. annual meeting at Casa del Rey Hotel, Santa Cruz.

April 20-21—Pacific Northwest Purchasing Agents Conference, at Multnomah Hotel, Portland. Contact Don Woodman, Purchasing Agents Assn. of Oregon, P. O. Box 1269, Portland, WE 6796.

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Company _____

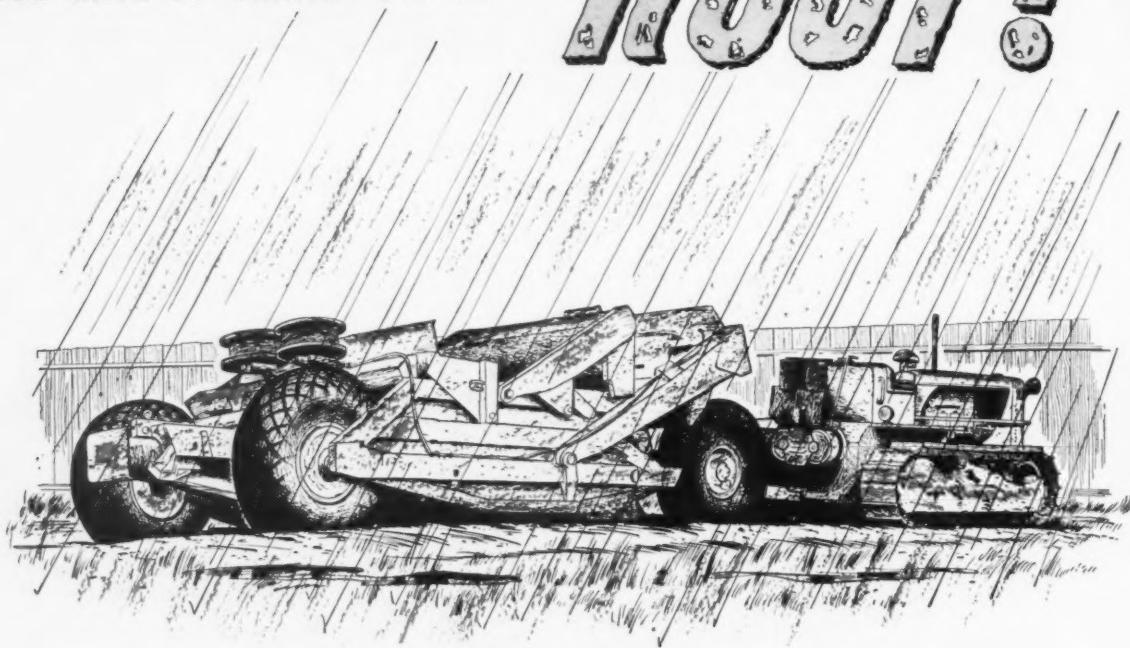
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Other Products: PERMACLAD Stainless Clad Steel • A. W. ALGRIP ABRASIVE Floor Plate
Billets • Plates • Sheets • Strip • (Alloy and Special Grades).



NEXT SPRING...HOW MUCH WILL
YOU HAVE TO CHARGE OFF TO

RUST?



**Rust season is ahead—better protect
your equipment with Shell Ensis Rust
Preventives. Low cost, easy to apply**

Rust can be mighty expensive—when you total up the *money loss* it causes by ruining equipment or shortening its life, plus the *time loss* when you have to spend hours removing rust.

Steer clear of all that expense and extra labor—protect your equipment during the lay-up season with Shell Ensis Rust Preventives. These products stop rust by coating metal surfaces with a tough film that repels *air and moisture*. Protection lasts for months, even in outdoor storage.

In a fraction of the time it takes to clean off rust—and for a fraction of what rust damage can cost you—you can keep your equipment rust free and ready to go when you need it. This season, try Shell Ensis Rust Preventives.



To Rust-Proof Tools, Machinery, Etc.

—for exposed ferrous metal surfaces, ask your Shell man for Shell Ensis Fluid 210. Put it on by dipping, spraying or brushing. It dries to a grease-like film which you can wipe off, when the equipment goes back in service, with any petroleum solvent.

To Rust-Proof Idle Engines

—for interior protection of gasoline or Diesel engines during lay-up periods, replace regular crankcase oil with Shell Ensis Oil 411 or 412. Run engine briefly to coat moving parts. Simply reverse that process when truck or tractor goes back in service.



SHELL ENSIS RUST PREVENTIVES

WESTERN INDUSTRY—November, 1950

THE WESTERN OUTLOOK . . . News · Statistics

1

Shipbuilding on West Coast may outrun rumors; Pipe short but oil prices getting longer; Northwest brown-out could be blackened by kilowatt priority to aluminum; Aircraft production costs fly high

RIIGHT now the war front is comparatively quiet, but a sudden upset might precipitate partial revival of West Coast shipbuilding. Stranger things have happened. If we had to build a lot of ships quickly, West Coast would get a break. Maritime Commission is considering this possibility. Unconfirmed talk is 50 cargo ships able to outrun the fastest subs. Passenger ships another possibility.

The housing cut-back was a major factor in the recent break in the lumber market, but it may be next year before any real slow-down in housing operations develops because of work already under way. By that time war orders may be sufficient to offset losses in plumbers goods, light fixtures, heaters and other housing accessories. Firms in Oregon and Washington seem to be much more aggressive in soliciting Army Ordnance orders than Northern California firms.

As for long range construction, William E. Waste of Bechtel Corporation, chairman of the San Francisco Bay Area Council, predicts that new records in the Far West's annual rate of



private investment in plant and equipment will be attained in the next decade, for the region could have as much as 20% of the nation's total volume

Business Activity Indices

	June	July	Aug.
1 Arizona	355.9	367.3	370.8
2 California	236.5	253.2	249.4
3 So. California	299.9	324.9	324.7
*Pacific N.W.	234.5	.....	.....
*Puget Sound	229.1	.....	.....
*Inland Empire....	250.7	.....	.....
*Lower Columbia	232.6	.....	.....

1. Valley National Bank (Phoenix) index, based on a weighted composite of retail sales, agricultural income, and employment in mining, manufacturing and construction, seasonally adjusted. 1940 = 100.

2. Wells Fargo Bank & Union Trust Co. index based on the following components: Industrial production, freight carloadings, bank debits, department store sales (weighted 4, 3, 2, 1, respectively, and adjusted seasonally).

3. Security First National Bank of Los Angeles index, based on the following components and weights, and adjusted seasonally: department store sales, 15; building permits, 5; Los Angeles bank debits, 20; residential city bank debits, 5; agriculture city bank debits, 5; industrial employment, 20; industrial power sales, 13; railroad freight volume, 6; telephones in use, 7; real estate activity, 4.

4. Index compiled by Bureau of Business Research, University of Washington. Based on a weighted composite of population, value of manufactured products, dollar volume of wholesale trade, dollar volume of retail trade, dollar volume of service-establishment businesses, employment, and income. Weights were determined of the economic importance of each of the 3 regions of the Pacific Northwest based on these 7 indicators.

For the Pacific Northwest as a whole, the three regional index figures are weighted as follows: Puget Sound Area, 43.7%; Lower Columbia Area, 37.1%; Inland Empire Area, 19.2%.

p Preliminary estimate.

MANUFACTURING EMPLOYMENT

Estimated Number of Employees
Source: U. S. Bureau of Labor Statistics
and State Agencies

(In thousands of persons)

	Aug. 1949	Aug. 1950
Washington	172.4	184.3
Oregon	143.1	151.5
California	758.2	843.4
TOTAL PACIFIC	1,073.7	1,179.2
Montana	19.1	19.8
Idaho	24.0	23.9
Wyoming	6.6	6.1
Colorado	55.1	59.5
New Mexico	10.3	12.1
Arizona	14.1	16.2
Utah	29.0	29.4
Nevada	3.1	3.4
TOTAL MOUNTAIN	161.3	170.4

WHOLESALE SALES

In thousands of dollars. Percentage changes are from corresponding month of preceding year.
From Bureau of the Census.

MOUNTAIN

1950	Automotive Supplies	Change	Electrical Goods	Change	Furn. and house furn.	Change	Groc. and foods exc. farm. prod.	Change	General Hardware	Change
March	643	-23	3,671	-2	1,202	+49	.....	.....	2,138	+ 2
April	907	+10	3,288	-3	907	+20	.....	.....	1,998	- 8
May	781	-6	4,050	+9	1,045	+43	.....	.....	2,157	+14
June	857	+15	4,074	+1	1,294	+15	.....	.....	2,186	+ 7
July	1,277	+47	5,347	+58	1,261	+40	.....	.....	2,488	+40
August	1,351	+59	5,457	+50	1,738	+90	.....	.....	3,125	+55

PACIFIC

1950	Automotive Supplies	Change	Electrical Goods	Change	Furn. and house furn.	Change	Groc. and foods exc. farm. prod.	Change	General Hardware	Change
March	2,320	-2	14,254	+ 7	3,402	+27	.....	.....	7,371	- 2
April	1,437	-13	13,120	+ 3	3,124	+25	.....	.....	6,659	- 2
May	1,800	+ 9	14,510	+ 7	1,896	+39	.....	.....	7,953	+ 9
June	2,592	+ 3	15,062	+ 3	3,108	- 5	.....	.....	542	+19
July	2,919	+23	22,450	+80	3,902	+ 3	.....	.....	710	+ 5
August	3,522	+40	22,631	+65	5,299	+89	10,280	+81

March 2,320 -2 14,254 + 7 3,402 +27 7,371 - 2

April 1,437 -13 13,120 + 3 3,124 +25 6,659 - 2

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July 2,919 +23 22,450 +80 3,902 + 3 710 + 5

August 3,522 +40 22,631 +65 5,299 +89 10,280 +81

of industrial construction, compared to approximately 8% in the last 25 years.

FREIGHT

Cars of revenue freight, railroad carriers in 11 Western States
Compiled from Assn. of Am. R. R. weekly reports

	Carloadings	Eastern Connections	Received from
	1949	1950	1st 8 mos. 1st 8 mos.
Carloadings	565,048	603,776	4,191,640 2,275,538
Rec'd from	286,832	349,877	4,058,099 2,375,702

TRUCK TRAFFIC

(Number of commercial trucks entering state through border checking stations)

	Aug. 1949	Aug. 1950	Total 8 mos.	Total 1949	Total 1950
California	16,207	21,619	115,632	146,159	
Arizona	21,004	29,299	167,369	210,948	

BANK LOANS

Industrial, commercial and agricultural
(In millions of dollars)

From weekly reporting member banks of Federal Reserve System in 7 Western cities: L.A., S.F., Portland, Seattle, Tacoma, Spokane and Salt Lake.
(Average of Wednesday reports)

	August, 1949	August, 1950
Net Demand Deposits.....	8,453	9,037
Time Deposits	6,178	6,223
Total 8 months.....	15,631	15,260
Net Demand Deposits.....	67,820	70,699
Time Deposits	48,928	50,155

BANK DEPOSITS

(In millions of dollars—adjusted)

Average of daily figures. All member banks in the 12th Fed. Res. Dist. Demand deposits, excluding U. S. Government deposits, cash items in process of collection, and interbank deposits.

	Aug. 1949	Aug. 1950
Net Demand Deposits.....	8,453	9,037
Time Deposits	6,178	6,223
Total 8 months.....	15,631	15,260
Net Demand Deposits.....	67,820	70,699
Time Deposits	48,928	50,155

CONSUMERS' PRICE INDEX

From Bureau of Labor Statistics

100 = 5 yr. Avg. 1935-39

	Los Angeles	San Francisco	Portland	Seattle	Denver
Mar. 15	165.9	172.3	.....	.....	165.7
Apr. 15	166.9	174.8	.....	.....	165.7
May 15	166.7	.....	.....	171.8	.....
June 15	166.7	173.1	.....	.....	169.5
July 15	168.2	179.2	.....	.....	175.2
Aug. 15	169.1	.....	.....	.....	175.2

INDEX OF DEPARTMENT STORE SALES

(Index numbers, 1935-39 daily average = 100
with seasonal adjustment.)

Compiled by Federal Reserve Bank

	Aug. 1949	Aug. 1950
Total 12th Fed. Res. Dist.	333	373
Southern California	372	408
Northern California	293	336
Portland	324	358
Western Washington	350	399
Eastern Washington and northern Idaho	353	394
Utah and southern Idaho	312	354
Phoenix	404	466

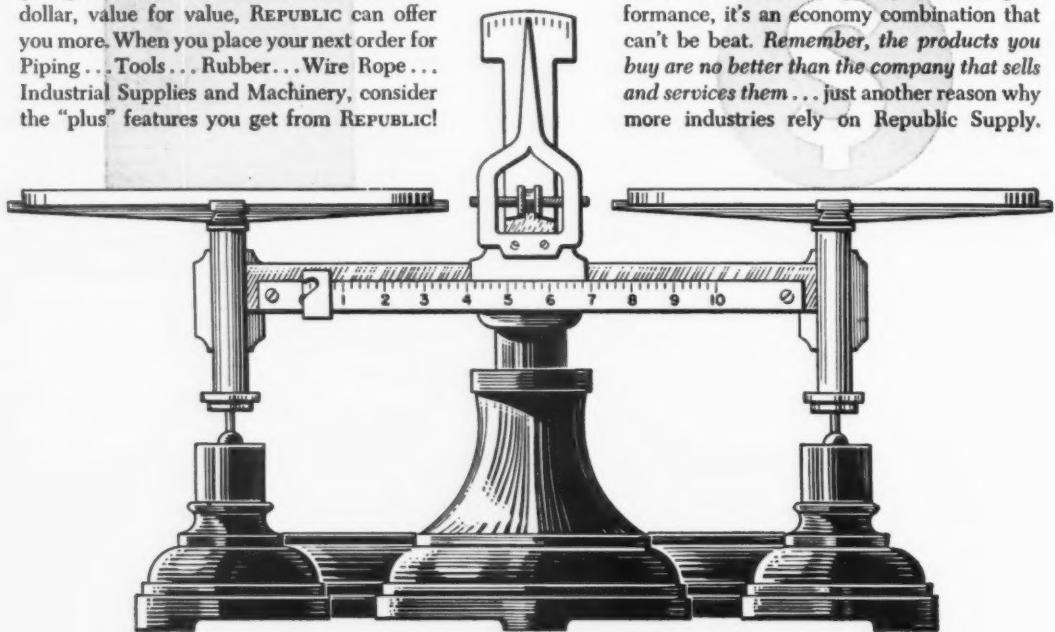
In Perfect Balance

QUALITY

The Republic Supply Company of California represents over 300 leading manufacturers, with more than 25,000 products. These manufacturers build quality products that are made to last longer, perform better, and give greater customer satisfaction. Dollar for dollar, value for value, REPUBLIC can offer you more. When you place your next order for Piping . . . Tools . . . Rubber . . . Wire Rope . . . Industrial Supplies and Machinery, consider the "plus" features you get from REPUBLIC!

PRICE

Quality products cut unit sales costs because they produce quantity sales! That's how REPUBLIC meets competitive bids, and at the same time can offer top-quality products that cost you less in the long run. When you add REPUBLIC service to quality product performance, it's an economy combination that can't be beat. Remember, the products you buy are no better than the company that sells and services them . . . just another reason why more industries rely on Republic Supply.



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AN INDEPENDENTLY OWNED AND OPERATED COMPANY SERVING WESTERN INDUSTRY

Piping • Tools • Rubber • Wire Rope • Industrial Supplies • Machinery

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WILMINGTON

HUNTINGTON BEACH

LONG BEACH

STOCKTON

SAN JOSE

VENTURA

GARDENA

AVENAL

FRESNO

SANTA MARIA

CUYAMA

NEWHALL

TAFT

THE WESTERN OUTLOOK . . . News · Statistics

2

Gas

General feeling in the Pacific Northwest is that unless the Alberta authorities decide quickly to permit exportation of natural gas to Oregon, Washington and other Northwest states, shortage of steel will delay building of a pipeline for several years. Northwest Natural Gas Company, first of the applicants for a permit, feel that steel will be forthcoming. Apparently Alberta is endeavoring to hurry up the hearings and the whole question may be settled before the end of the year.

Gas companies in the West show a healthy gain in revenues from natural gas sales for the second quarter of 1950 over a year ago, 9.8% in the Pacific states and 17.4 in the Mountain states. Sales in the two groups were up 13.4% and 15.5%, respectively. Number of residential customers in the Pacific states was 141,651 greater than last year for the second quarter; in the Mountain states 43,184.

Oil

Small increases recently in gasoline prices probably portend a general uptrend in the whole price structure. Some observers think this rise might be as much as 40 cents a barrel, with the biggest boost in the long depressed heavy oils. There have been some increases in eastern quotations on home heating oil, diesel fuel and kerosene, and efforts are being made to raise natural gas rates in some western cities.

Creeping price rises in petroleum and its products are predicted for a variety of reasons, including:

(1) Higher labor and other operating costs.

(2) Drastic slash in the huge accumulation of heavy crude formerly hanging over the West Coast market—thanks to pre-Korea shipments East and to military activity which has had an impact about twice as strong on the Western oil picture as elsewhere.

(3) Increase in the number of motor vehicles on the road.

NATURAL GAS

CALIFORNIA

(Compiled by Roy M. Bauer, gas supply supervisor, Southern California Gas Company)

(in thousands of cubic feet)

Number of Consumers	June 1950	June 1949
Domestic and Commercial	2,756,268	2,594,830
Industrial	6,788	5,798

UTILIZATION

6 months,
1950
1949

Domestic and Comm. Sales	161,957,148	161,924,011
Industrial Sales	68,419,627	56,049,200
Electric Generation	21,953,138	21,474,661
Net Receipts from Producers	262,051,950	247,052,479

ELECTRIC ENERGY

(Production for Public Use—in Millions of kilowatt hours.)

(Source: Federal Power Commission)

	Total	Total	Total
	July 1949	July 1949	July 1950
	T mos.	T mos.	T mos.
Mountain	1,241	9,481	1,449
Pacific Northwest	1,393	12,025	1,802
California	2,119	12,990	2,343
TOTAL PACIFIC	3,712	26,695	4,145
	28,587		



(4) Stepped up ship movements and industrial activity.

Shortages of military aviation gasoline have brought swift action by the newly-established Petroleum Administration for Defense. U. S. refiners have been asked to plan how they can lift production of "AV-gas" immediately by 25,000 barrels a day. Government officials requested this step without waiting to figure increased costs, but gave verbal assurance the industry will be taken care of and that anti-trust angles will be handled somehow without penalizing the companies for cooperating.

Both aviation gasoline and synthetic rubber are competing for some important petroleum derivatives, particularly the butylenes. Shortage of suitable tank cars to move the latter volatile byproducts also is causing difficulty.

Experts agree that civilian gasoline soon may have its octane rating reduced to release alkylate for making of AV gas, but there is no serious talk yet about cutting the supply of civilian premium gasoline, since the boost sought by the military represents only one per cent of the current national production.

Shortages of pipe already are slowing up oil well drilling. Richfield has had to curtail its operations more than 40% in the booming new Cuyama Valley field. Some supply houses report a tubular goods scarcity nearly as tight as in World War II.

A little relief is expected from foreign pipe which is coming into this country in small quantities, at a price about 30% higher than domestic quotations. Interest is reviving in some long dormant shallow fields which require less pipe and tubing to complete.

Usual winter fuel worries of the East appear less serious this year, despite the war outlook. The Bureau of Mines says it expects no shortages in either fuel oil or gasoline during the cold season. Early bites by the military into inventories of refined products have been offset by stepped-up refinery runs.

It is estimated that total 1951 demand for petroleum will run about 5.7% above last year's rate, but still somewhat less than consumption as of this moment. This assumption takes into account the ending of Korean operations but assumes that continued de-

fense activities will largely offset this factor, thus gradually swelling inventories during the year.

Electric Energy

Alarmed at the prospect of the government giving aluminum reduction priority over other industries, which would mean a heavy blow to a region already facing a winter brown-out, the Western Group of the Northwest Power Pool, composed of public and private utilities operating principally in Oregon and Washington, have asked the National Security Resources Board to set up a system of priorities that will not wreck the general industrial economy of the area. September energy demand was 12.67% above a year ago, and the increase over last year for the first nine months was 12.88%. With September peaks equal to those of last December, and additional aluminum potlines going in, the prospects for next winter are considered disturbing. In the Pacific Southwest area August energy demand was 10.3% above 1949, and Sept. 7.7%, a normal increase with no problems in sight. Southern California Edison is reported to have decided on the Pomona area rather than Whittier Narrows as the site for its new steam plant, in order to use Colorado River water. Firm contract on this job is for 100,000 kilowatts, with 100,000 more to be added ultimately.

Coal

Bituminous coal production in the intermountain west limped along at about 75 per cent of normal during the past month because of a shortage of cars. Utah mines are operating only four days per week and Wyoming and Colorado mines are operating three and four days. Demand would justify a five or six day week.

Aluminum

First impact of allocations is expected to be a cutback of not less than 20% in supplies to makers of civilian goods. The present shortage is in basic aluminum, rather than in fabricated products, there being no bottleneck as yet in rolling mill capacity.

The first increase since the beginning of the year came when the price of aluminum pig and ingot was raised 1 1/2¢ a pound, bringing the increase during 1950 to 2¢ per pound.

Aluminum pipe and fittings practically unobtainable for irrigation sprinkler system people, of which there are several in the Pacific Northwest.

Steel

For the benefit of Southern Californians apprehensive as to whether U. S. Steel is going to do all its expanding at Geneva right now and forget the proposed mill at

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PETROLEUM

(California, Oregon, Washington, Arizona, Nevada)

(From Bureau of Mines)
(In Thousands of Barrels Daily)

	July 1949	July 1950	Total	Total
	T mos.	T mos.	July 1949	July 1950
Crude Production	907	882	6534	6081
Gasoline	374	413	2592	3005
Gas, Oil, etc.	131	126	1004	1130
Heavy Fuel Oil	311	320	2607	2927
ALL PRODUCTS	979	959	7122	8081

BITUMINOUS COAL AND LIGNITE

(In thousands of tons—From Bureau of Mines)

	July 1949	July 1950	Total	Total
	T mos.	T mos.	July 1949	July 1950
Colo.-N. M.	195	3,105	218	2,170
Wyoming	336	3,028	312	2,737
Utah	265	3,733	410	3,168
Montana	166	1,508	162	1,391
Wash.-Alaska	74	1,612	74	714

SOME QUESTIONS AND ANSWERS ON YOUR FASTENER PROBLEMS



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Torrance, President Fairless told *Western Industry* in an interview at San Francisco last month that when the decision is made about Torrance, "you will be well satisfied with it." The company is also considering establishing fabricating facilities in the Northwest, he said. The whole Western situation was gone over by the top U. S. men in the West with Mr. Fairless at the time of his visit to San Francisco (sorry we can't furnish a tape recording of the session).

In addition to the 100,000 hot-rolled sheet capacity to be added to Geneva, Kaiser expects to add facilities at Fontana for 200,000 tons of tin plate and a 200-ton open hearth furnace which will increase steel making capacity 180,000 tons. In the meantime it is a tough deal for the mills to keep up with the demand. U. S. Steel has been buying steel from CF&I, turning it into coils at Geneva, then shipping them to the Columbia Steel cold reduction mill at Pittsburgh, Cal. Also hot-rolled coils are being shipped clear across the country from Eastern plants of U. S., and pig iron is being hauled from Geneva to the recently reactivated DPC foundry at Pittsburgh, converted into steel ingots and shipped back to Geneva to be made into hot rolled coils and then hauled back to Pittsburgh again for finishing.

Nonferrous Metals

Nonferrous metal production continues to move slowly upward as mines shut down during the summer months get back into production.

Aircraft

Soaring costs of production threaten to cut sharply into the number of aircraft the Air Force hopes to get with present appropriations. Already orders have been placed for nearly 4,000 of the 4,426 airplanes covered by the present interim schedule for delivery by December, 1951. At the rate costs are going up, the armed services will have to settle for less than the 69 air groups presently authorized, or else the Congress will have to pony up an additional third of a billion dollars.



A visiting team of military bigwigs told Western industrialists that earlier scares regarding "dispersing" aircraft plants out of the West Coast and into inland areas are groundless, but that no new plants will be built in this area until all U. S. plants are occupied and doing at least one shift. Output of existing Western plants can be boosted, however, by adding personnel, and improved tooling will be necessary.

An overflow load from North American's Los Angeles plant will be carried at Columbus, Ohio, where the company will take over a government-owned plant operated since early in World War II by Curtiss-Wright. The latter company had previously announced its intention of ceasing operations there by next April.

Pacific Airmotive is beginning to hire 1,000 skilled workers for its plant at a recently acquired airport at Chino, and will overhaul and reactivate a large number of four-engine military cargo-carriers. Lockheed is starting an Air Force contract for overhauling and modifying F-80 fighters, which will be returned to the home factory from operational work in Europe and the Far East.

Sugar

"No, we don't know there's a war on" seems to be the attitude of the sugar buying public, for early fall business with the refineries was below normal, due evidently to people falling back on the inventories they had built up earlier when scare buying was epidemic. For some unexplained reason, refined cane prices on the West Coast have stayed about 15¢ a hundred over the Chicago level. Cane sugar production and crop reports continue about the same, and in

beets the crop estimates remain mostly unchanged, although yields per acre are higher and the crop seems likely to run above the predicted 10½ million bags. Sugar content of beets seems to be below normal.

Canning and Packing

California's major canned fruit product, cling peaches, totaled 14,428,886 cases this year, about 15% below the 1949 pack. Although the market probably could have taken more peaches, the canners and growers had gotten together before the Korean outbreak on a tree thinning program intended to cut down the yield to a marketable figure. When the North Koreans marched across the 38th parallel the supposedly-surplus fruit was already on the ground, instead of still ripening on the trees. As it is, canners will sell all their pack easily and have no carryover to worry about next summer.

After an all-time low pack of apricots in 1949 (2,307,404 cases), there was an outturn this year of 3,660,606 cases, which is still below all other post-war apricot packs except 1949. Sweet cherry pack 372,889 cases, about half of 1949. Pacific Northwest growers suffered heavy crop losses, and the apricot pack in that area, which normally runs from 50,000 to 90,000 cases, was too small to report. Other low Northwest packs reported are dark sweet cherries, 118,620 cases, a little better than half the 1949 pack; light sweet cherries, 195,594 cases, about one-third of 1949; boysenberries, 68,547, less than half of last year; loganberries 24,775, less than a third; red raspberries 70,490, about half; youngberries, 1,940, less than a third.

California canned tomato pack apparently will be below 1949. Asparagus pack 2,566,

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ETHYL ALCOHOL

(From Bureau of Internal Revenue)
Production (in proof gallons)

DOMESTIC UNDENATURED ALCOHOL

	Aug. 1949	Aug. 1950	Total 8 mos. 1949	Total 8 mos. 1950
Calif.	416,574	478,099	3,632,262	3,904,533
Colo.				
Wash.	174,602	430,122	2,340,679	3,141,144

DENATURED ALCOHOL

Calif. (Compl. de- natured)	21,669	9,692	194,122	84,764

SPECIALY DENATURED				
Calif.	260,509	356,331	2,095,841	2,495,555
Wash.	16,286	16,258	106,312	130,755

CEMENT

(In thousands of bbls.)

From U. S. Bureau of Mines

	July 1949	1949	July 1950	Total 7 mos.
Calif.	1,880	12,748	2,347	14,995
Ore.-Wash.	703	3,674	772	3,437
Colo.-Wyo.- Mont.	592	3,255	861	3,927

AIR FREIGHT

(In pounds. Figures from airports)

Los Angeles

	In	Out	In	Out	In	Out
August	1,608,889	1,619,867	1,760,101	1,800,183	541,619	645,671
Total 8 months 1949	9,301,836	9,334,431	8,926,632	9,898,734	899,350	1,263,146
Total 8 months 1950	9,933,367	10,930,989			1,848,909	2,439,510

Pigiron Output
Steel Output
Alloy Steel Output
Carbon Ingots, Hot Topped*

*Included in total steel.

1950 Los Angeles San Francisco Oakland

1950	Los Angeles		San Francisco		Portland		Seattle	
	In	Out	In	Out	In	Out	In	Out
August	1,608,889	1,619,867	1,760,101	1,800,183	541,619	645,671		
Total 8 months 1949	9,301,836	9,334,431	8,926,632	9,898,734	899,350	1,263,146		
Total 8 months 1950	9,933,367	10,930,989			1,848,909	2,439,510		

*Not available.

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forged...
machined...**



by
National

Heavy manufacturing jobs like the one shown above are typical of jobs National turns out.

For instance—we cast the ingot, made the forging, and did the heat treating and machining here at our fully integrated machinery manufacturing

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MELTING • FORGING • CASTING • MACHINING
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279 cases, slightly under last year. California raisin tonnage expected to be lowest in some years. California Fruit Growers Exchange have purchased from Calpack for \$1,250,000 rights to the use of name Sun-kist for canned or concentrated items. The name is known worldwide for its use by the Exchange for fresh citrus fruits, but this deal may presage a big drive in the canned and frozen citrus juice field by the Exchange, which heretofore has considered the processed fruit as merely an outlet for culls.

Salmon industry situation is summed up in poor pack and high prices. Alaska pack was about wound up in mid-October at roughly $\frac{3}{4}$ of 1949 pack, less than half of best years. Puget Sound and Columbia River packs were quite poor. Some packing still going on in Puget Sound. Prices are very firm on canned fish and will no doubt go higher. Red salmon selling around \$31 per case.

Demand is strong. Packers are allocating sales to customers and predict entire 1950 pack will be out of their hands by January. The military has been taking big consignments and is expected to increase its buying.

Lumber

The boom bubble burst about October 1 when the long-skyrocketing prices tumbled suddenly in common and dimension lumber. Building studs (2 x 4's) that had been grabbed eagerly at \$80 and better per M board feet dropped down to \$55 and \$60. Small green lumber mills specializing in these items were caught hard and some are reported in bad shape.

Cause of the slump is generally blamed on housing controls. Big contractors are finishing up current projects but are making practically no new starts. Dry and finished lumber in better grades little affected so far and larger mills with kilns and planing mills are running at very high rate. Production controls are imminent and if large scale defense buying starts the lumber picture may change radically within 90 days.

Tone of selling prices is softening generally. Housing stoppage may cause big curtailment in pine districts and lowered production of sash and doors. Some of the most seasoned operators are currently bearish but plenty are still roaring along with their heads in the clouds, unaware that their feet are no longer on solid ground. No marked change in log prices yet as there is still need to build up winter inventories, and mills are cautious since the memory of the long shut down in last year's tough winter is still fresh.

CALIFORNIA REDWOOD ASSOCIATION

(Thousands of board feet)

	Total July 1950	Total July 1949	Total 7 mos. 1950	Total 7 mos. 1949
Production	42,597	40,953	310,558	255,363
Shipments	44,011	31,664	277,163	197,191
Orders Rec'd	48,502	37,861	286,554	187,462

WESTERN PINE ASSOCIATION

(Comparative report, 106 identical mills,
in thousands of board feet)

Week	Three Year Ending Weekly Avg.	Total to Date Sept. 30	Total to Date for Sept. 1949
Orders	82,546	70,824	2,917,219
Shipments	83,945	70,325	2,913,566
Production	85,530	72,333	2,550,887



Pulp and Paper

Production rate for all grades of pulp and paper continues at terrific pace with operators figuratively trying to crowd eight days into the week. Eastern paper mills running full and crying for more West Coast pulp. Western paper mills now have largely instituted voluntary allotment system on shipments to customers; falling behind on orders. West Coast pulp mills in better sulphite grades are geared to overnight conversion to manufacture of military pulps for explosives and could throw an estimated 2,000 tons to such production, but no military demand yet apparent.

Wage situation is steady, with present contracts running to June 1951. Pulpwood prices steady but more farmer-wood coming in, a reflection of high log prices forced by plywood and lumber mills. Certain supply items such as special alloys, glycerine, etc., are tight, but little evidence of advance buying on a hoarding basis, but some extra buying for price protection.

Alaska mill construction, which was to have run around \$30,000,000, has been tabled, mainly because of confused political situation and potential Indian rights in timber, almost all of which is in National Forests. Weyerhaeuser Timber Co. has just started plant expansion program at Longview, Washington, which will add 175 tons daily bleached kraft pulp which will go into manufacture of lightweight board products. Longview Fibre Co., also at Longview, is adding a new paper machine.

Plywood

Plywood mills are still running at high capacity and prices are firm, but there is a desperate scramble for logs. The long range picture on "peelers," as plywood logs are termed, is one of steadily diminishing supply. In the main, these are logs from trees 150 or more years old, and second growth forests, which are becoming of increasing importance, will be of little help to the plywood operators for many years yet, although of much

PULPWOOD				
(Pacific Northwest)				
(Cords of 128 cu. ft., roughwood basis.)				
Source: Bureau of Census				
	Total 7 mos. July 1949	Total 7 mos. July 1950	Total 7 mos. 1949	Total 7 mos. 1950
Receipts	273,469	327,249	1,683,226	1,566,538
Consumption	189,542	294,191	1,815,628	2,148,710

SOFT PLYWOOD				
From Bureau of the Census				
PRODUCTION				
(in thousands of square feet)				
	Total 8 mos. 1949	Total 8 mos. 1950	Total 8 mos. 1949	Total 8 mos. 1950
July	109,213	148,899	1,091,349	1,333,332

current value to pulp and lumber operators. Unless the coming winter sets in unusually early and is tough most mills will probably have enough logs to keep going.

Housing curtailment is not hitting plywood mills too much since the customer base of the industry is now very broad, thanks to long range market development over recent years. However, the industry is in a somewhat skittish position. There is much more caution than a month ago. Two principal threats to the current good times are seen by longheaded men: (1) the danger of pricing plywood out of the market; (2) government controls. The export market is scanty with U. S. mills. However, British Columbia mills are getting U. S. dollars via a circuit. Shipments to United Kingdom points are heavy, possibly more than 90%, and the dollars that come back are U. S. lend lease.

Furniture

With materials getting tighter and more expensive, furniture makers are feeling pressure tending to boost prices at the manufacturers' level, although those prices already are up about five to seven per cent on the average since midsummer. Orders on case goods piled up about 75 days, on upholstered items six to seven weeks.

Shortages pinch most on springs, upholstery, filling, and cotton fabrics, with lumber not as bad for the most part. Government is also stockpiling 10% of pure latex imports, cutting foam rubber nearly half.

Western manufacturers asked that rail rate reductions granted Chicago manufacturers on furniture shipments into New Mexico and Oklahoma, be matched by corresponding adjustments on into the same territory. Western lines refused, but through efforts of the Southern California Furniture Manufacturers Association, the traffic managers committee of the western roads now has agreed to reconsider the proposal during November.

Apparel

Prices of raw wool, cotton, and some of the textile goods have softened a little since the Korean affair started a buying stampede, nearly denuding the world market of wool and creating the biggest price rise in British wool history. But mills are booked well ahead. Most evident symptom that panic buying now is dying down is the fact that re-orders are not being reported by wholesalers in the expected volume, and some manufacturers therefore are finding themselves stretching their credit lines.

Union rayon mills have granted increases of 14 to 17 cents an hour and non-union plants are falling in line also. The International Ladies Garment Workers Union has signed up 94 women's dress manufacturers in Los Angeles through NLRB elections and new wage demands are considered likely.

WHEAT FLOUR

In thousands of sacks

(From Bureau of the Census)

	Total July 1949	Total 7 mos. 1949	Total July 1950	Total 7 mos. 1950
Oregon-Washington	1,217	8,753	1,298	7,653
Montana	237	1,829	269	1,895
Utah	329	2,085	302	2,203
Colorado	337	2,584	322	2,104
California	396	2,485	421	2,650
TOTAL	2,516	17,736	2,612	16,495

HOARDING STEEL...

is hardest on the hoarder!

Buying steel for which you have no immediate need helps set up a vicious chain reaction. The next fellow follows your example—and the next. Supplies are soon depleted. In a week or two you may be searching in vain for a certain steel—which is lying idle in a neighboring plant!

The primary purpose of the steel warehouse is to supply the day-to-day needs of industry—not to help build up a host of private stock piles. Warehouse stocks are constantly being replenished by mill sources to balance receipts against shipments. But if everybody starts buying beyond their immediate needs the system breaks down—and everybody suffers.

The vital function of the steel warehouse was recognized in World War II. Provision was made for continuous replenishment of warehouse stocks. This recognition continues.

Hence we urge steel users to exercise judgment in placing orders. Order from warehouse for your current needs only. Our company and all the other steel-service organizations will continue to serve you to the best of our combined abilities. But our usefulness will be crippled if steel buyers themselves let the situation get out of hand. So let's work together to maintain production throughout the country.

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WESTERN INDUSTRY



PIPE IT ... and save manpower

**Network of all-welded pipe
eliminates trucking and manual handling
of 10,000 pounds daily
at new rendering plant in Los Angeles**

HANDLING and processing up to 10,000 pounds of readily-solidifying tallow and blood every day through a network of hundreds of feet of all-welded pipe without shutdown, is the outstanding operational record being established by State Packing Company, Los Angeles, in their new, modern rendering plant.

This new system is quite different from its predecessor method, trucking and manually handling the material around the plant. It is not only far more sanitary, but there is also a great saving in manpower.

In the present system, tallow is forced through the piping by either centrifugal or rotary pumps, while blood takes another course.

An 800-gallon tank in the basement collects blood directly from the killing floor. From that tank, the liquid is blown through a three-inch line to the percolating tank, located directly above the blood drier. Then the blood

is pre-cooked with live steam in the percolating tank for about eight to ten minutes. Surplus water is then drawn off the bottom of the tank and the blood is dropped through a 12" valve to the blood drier.

Steam Flushes Pipes

All tallow lines are connected by valves to the steam lines. Then after the operation is finished, the tallow lines are flushed out with live steam. This is always the case, so the lines will be clear for the next cycle.

Steam injected into the top of a huge blow tank at 120 lbs. pressure forces the substance to be processed through a six-inch extra heavy welded line. This line, constructed of long radius bends, is connected to a three-way valve. This three-way valve, which in turn is connected to two 5' x 12' cookers, affords the operator full control over the material. A chain operated wheel connected to the valve

enables the operator, at floor level, to fill both cookers individually, as desired.

Steam enters an outer jacket of the cooker at a pressure of 80 p.s.i. This pressure is obtained by reducing the initial 120-lb. boiler pressure by means of Bailey pressure reducing valves.

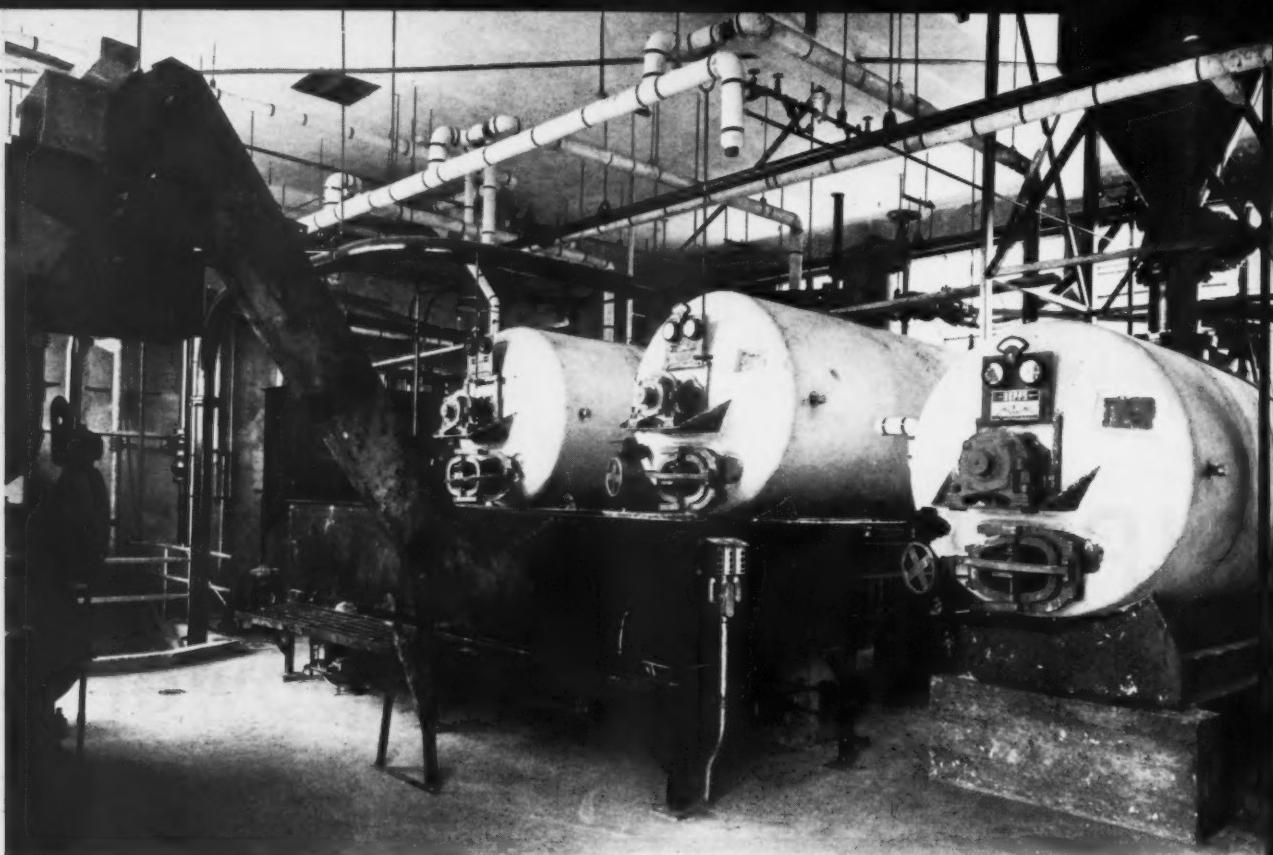
Care is taken to drip the steam line ahead of the pressure reducing valve. This is necessary in order to get live steam up to the block valve ahead of the p.r.v. at all times.

This assures the operator of steam in the cookers almost the instant the valve is opened. It also prevents condensate under pressure from passing over and through the seats of the valve, thus eliminating any possibility of unnecessary wear.

A strainer is installed between the p.r.v. and block valve to collect any foreign matter from passing into or through the p.r.v. The strainer is equipped with a blow off valve so that it may be cleaned without complete removal.

A by-pass installed around each p.r.v. assembly, is equipped with a globe valve. That arrangement allows steam to flow through to the cookers without any interruption when it becomes necessary to remove the p.r.v. or strainer for service.

To enable the operator to know just how the system is functioning, pressure gauges are installed at the p.r.v. assembly. One is on the h.p. side, ahead



Outstanding cleanliness of the plant interior is evident in this view of cookers, blood tank (elevated at right) and expeller (left).

of the p.r.v., and the other is on the down stream side or after the p.r.v.

A pressure relief valve is also installed on the down stream side of the p.r.v. as an added measure of safety. Pressure relief valves are also installed on cookers, as well as thermometers to record cooker temperature.

Outer jackets of the cookers are provided with steam traps; condensate is returned to the condensate header. These traps are of the bellows type. They are also equipped with strainer by-pass arrangement and check valves.

Valves Release Vapors

Vapors from the cookers are released through a regulating valve set at a pre-determined pressure. They are discharged through four-inch steel all welded lines to jet condensers located outside building. A two-inch water line is connected to the jet condensers and a stream of cold water condenses the vapors which drop through a four-inch line to a catch basin. At this point, any trace of tallow is then skimmed from the surface of the water and returned to the tallow tank. Check valves are installed in the four-inch drop to prevent any siphoning action from the catch basin back to the cookers.

After being properly cooked, the cracklings are emptied from the cooker

into a huge strainer. Here they are allowed to drain into a double bottom vessel which is heated by steam coils to prevent the tallow from solidifying. From this vessel the tallow is pumped to a series of settling tanks where the fine particles of cracklings are separated. The tallow line is also an all steel welded line with long sweeping bends to assure a free continuous flow without interruption.

All valves controlling the steam and tallow are equipped with extension handles. Much thought was given in the installation of this equipment as to the convenience of the operator as well as the service man.

After the cracklings have been transferred by conveyor to an Anderson expeller, the remaining tallow is pumped to the settling tanks. These lines use the same type of welded construction and long radius bends.

Steam Jets

At the pumps and at intervals in the tallow lines, steam jets from the steam main have been installed. After each time used all the tallow lines and pump are thoroughly cleaned and the system is left free of any tallow which might otherwise congeal and possibly cause stoppage. Provisions were made for expansion and contraction in the tallow

lines during steam cleaning.

These settling tanks are also of the double bottom type equipped with steam coils to maintain the correct degree and proper consistency of the tallow. These coils are of extra heavy pipe, all welded and properly dripped. The same type steam traps are installed throughout the plant to standardize on equipment. That means fewer repair parts in the stock room.

From these settling tanks, the tallow is pumped to two storage tanks having a capacity of approximately 130,000 lbs. They are located in the rear of the plant adjacent to the delivery area. A spiral type steam coil is installed in each tank and steam enters at a pressure of 80 p.s.i. The steam main is dripped by means of a trap assembly before entering the coil.

With this arrangement, live steam is available at the coil when it is desired. A steam trap is also installed as the coil leaves the tank, and the condensate is returned to the condensate return lines.

All piping in the plant is securely and neatly supported with steel hangers. Where more than two lines parallel each other, trapeze hangers are used. All lines are properly graded and steam lines dripped at end of each main or branch.

When an air pressure of approximately 55 p.s.i. is indicated, the quick opening gate valve is opened and the blood is then forced through about 120 feet of three-inch welded pipe to a coagulating tank. This three-inch line is constructed of numerous flanged spool pieces to allow easy access to the segments of the line for cleaning and removal.

An Ingersoll-Rand air compressor connected to an auxiliary tank for additional volume storage is used to produce air for transmitting the blood.

After the required amount of blood is accumulated in the coagulating tank for one cooking, the 12" gate valve is opened and the blood enters the cooker. This valve, while approximately 12 feet above the floor, is easily operated by means of a chain driven spur gear from the operating floor.

This cooker is very similar to the other cookers, inasmuch as it has the same type steam chamber and tray arrangements. Steam enters this cooker through a Bailey p.r.v. at a pressure of 50 p.s.i. Pressures and temperatures in the cooker are indicated on the gauge board in full view of the operator.

Hot Washing Water

180° hot water is used to wash up the plant and it is generated by a steam coil in a hot water storage tank. Water temperature is controlled by means of a thermostatic temperature controller. This control is connected in the steam line, using gate valves and strainers, also a globe valve in the bypass. The water is then heated to 180° F. and forced by means of a horizontal centrifugal pump, especially designed to pump hot water, to a temperature regulating valve. This valve has a hot water and cold water inlet and by setting the pointer on the valve handle to the desired temperature, the water is then discharged from the valve to the various locations throughout the plant.

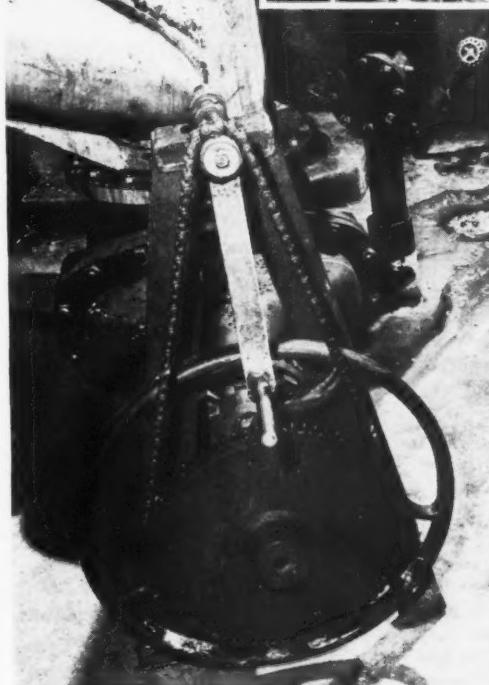
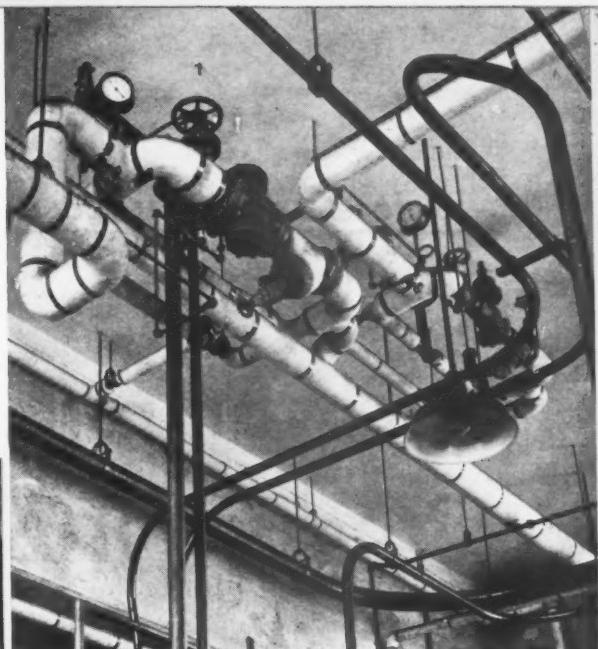
Steam is generated by a 125-hp. boiler and the condensate from the plant is returned to a condensate tank in the boiler room where it is pumped by means of boiler feed pumps to the boiler, automatically controlled.

Personnel

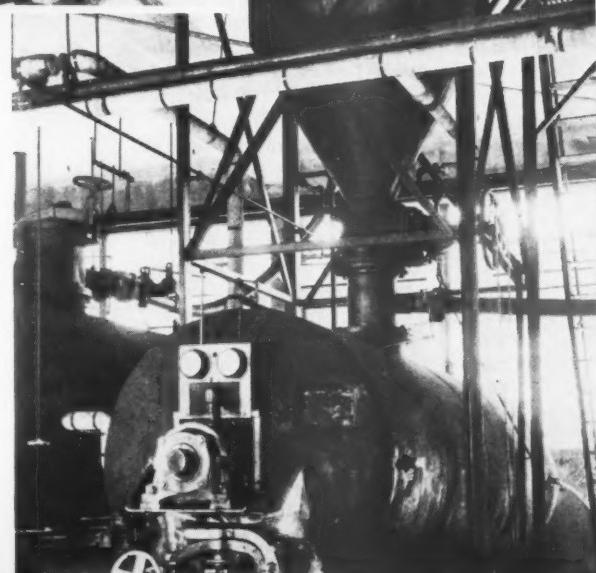
Chief Engineer Jess Williamson, and his son, are in charge of the plant.

This entire plant was designed by Mario J. Ciampi, Engineer, of San Francisco. All the equipment and intricate piping was installed by MacMen, Inc., of Los Angeles, who specialize in this type of installation. The plant has been declared by Government inspection to be one of the cleanest they have seen in a business of this nature.

So that the plant operator knows just how the system is functioning, pressure gauges are installed at the reducing valve assembly.



Close-up of 16-in. chain valve which is operated at floor level. All valves controlling steam and tallow flow are equipped with extension handles for convenient operation.



A 14-in. gate valve allows blood to enter cooker from elevated tank. This valve, 12 ft. from the floor, is operated by a spur gear.

A Before-and-After Case History

Revamping "War-Surplus" Production Control Methods

MORE THAN HALF the country's small and medium-sized industries are still, unwittingly, putting thousands of good dollars of pay-roll money every month into "war surpluses" of their own making." The man who made this statement recently knows whereof he speaks. For he is one of the Pacific Coast's prominent industrialists, the publisher of a metropolitan newspaper and board chairman of a large chain of Pacific Northwest banks. He is widely recognized and consulted as an authority on industrial investment and operation.

In the face of the common belief that war surpluses are now pretty well written off, this statement seemed somewhat strange, until the speaker went on, "War surpluses are not, as most people think, simply rusting junk-heaps of obsolescence or bargain-price stocks of goods. Industry's profit-killing surpluses today are the leftover, make-shift methods and the misfit men, spawned in the hasty improvisation of the war effort and still left lazily cluttering today's highly competitive production efforts."

A Typical Story

We were discussing one of several production "house-cleanings" I had recently concluded for this banker's customers, in which managements had decided that their war-contrived production-controls were inadequate to the present demands. And as we looked over many of the simple, straightforward evidences and control-implements—"before and after" the abandonment of the old, "surplus" methods —this banker suggested to the editors of *Western Industry* that these before-

By PAUL DE HUFF

MR. DE HUFF is an engineer of wide experience. In 1939 he worked out the design methods, conducted the field tests and wrote the manual for the West Coast Lumbermen's Association project on "Pre-Cut Framing."

When the Seabees' supply base at Port Hueneme, California, was being built by the joint venture of the Six Companies and two others, he was director of methods and procedures.

More recently he was engaged in production control "trouble-shooting" for a number of customers of the First National Bank of Portland.

and-after examples, gathered from an actual, average-size industrial operation, might be of illuminating interest

to *Western Industry* readers. So, here they are, with their own typical story:

A comparatively small Northwestern firm, manufacturing wood products and wood structures, had, during the war, suddenly been expanded to accommodate a deluge of war orders. Just as many another firm did, to meet the unprecedented demands, this organization reached frantically for whatever men and methods it could quickly lay hands on. In the haste for production and, incidentally, profits, this typical firm improvised only such meager "controls" as would give its management and its shops a general idea of what was going on. In mid-1948 this organization was still using a war-time "production control card"

THE OLD: Wartime "production control cards," showing no target dates or planning details, too closely resembled the Dodo bird.

Details:	Rev. #1		Rev. #2		Customer Description	No.				
	Started	OK	OK	Rev. #1	OK					
Submitted										
Approved										
In shop										
Lumber	Prelim	OK	Final	OK	Rev. #1	OK	Rev. #2	OK	Rev. #3	OK
Iron										
Hardware										
Anchorage shipped					Job. Rec.		Shpt. Req.			
Patterns	Underway	Complete					() Prints, Scheds. to () for			
Fabrication	Underway	Complete					Shipment #1	7		
Assembly	Erection						2	8		
Laminating	Prelim	Final					3	9		
Treating	Underway	Complete					4	10		
	1. Lam						5	11		
	2. Fab						6	12		
No.	Job Name						Complete:			
							Invoiced:			
							No.			

JOB SCHEDULE AS OF 7/16/48

10738 Continue shipping at rate 1 C/L every other work day.
 10793 2 Lam. Cols. ready for pickup week of 7-19-48.
 10794 Start shipping week of 7-19-48.
 10839 Plan to ship 7-28-48. To Be Confirmed.
 10861 Plan shipment week of 7-19-48.
 10867 Deliver week of 7-19-48 sure.
 10856 Deliver week of 7-19-48 sure.
 10863 Ship week of 7-19-48.
 10864 Ship week of 7-19-48.
 10869 Ship 7-19-48. A.M. Sure.
 10874 Ship week of 8-2-48.
 10875 Ship week of 7-26-48.
 10877 Ship prior to 8-15-48.

THE OLD: Informal report gave no status information.

THE NEW: "Status and Schedule of Orders," showing all pertinent order information, quickly improved the production timing.

Job No.	Order Date	Job Identity	Detailing	Sub-mit'd.	Apprvd.	Fatt-	Lbr.	O.H.s	Wtg.	Ship'd.	Deliv.	Plan to ship	Remarks
10738	2-18												SHIP PER SCHEDULE
10821	5-7										6-29		
10870	7-9										8-9		
10880	6-22										7-16		
10882	6-23		X	X	X	X					8-31		
10884	6-25										8-25		
10895	6-30										8-31		
10902	7-6										8-4		
10903	7-6										8-30	8-30	FOR ERECT
10907	7-8										SIMPLY 9-7		
10908	7-22										8-30	8-30	EACT.
10911	7-12										8-30		
10912	7-12										8-30	8-30	EACT.

carrying no "target" dates, no "planning" information and—like the Dodo bird—seemingly interested only in what had gone before.

Whole Story Available

By comparison, the re-vamped control card, now in use by this firm, not only provides for but actually invites and requires—within the same space—all the pertinent characteristics of the order, including type, size, production scheduling and delivery plan, with a "paralleling" of "estimated" and "actual" results for fast, intelligent expediting. These new individual-order control cards, worked in a "visible" type master file, now provide a centralized, completely-informed

source of production-schedule information and down-to-the-minute answers to all questions, from order acceptance to delivery.

Prior to the re-vamping of this firm's production-control methods, the management and the heads of production activities had, as their only source of information on what was planned and what was being done with the plant's current order-load, the accompanying breezily informal weekly report. Notable is the utter absence in this weekly "report" of any progress or status information on individual orders and the apparent complete dependence on simple, arbitrarily adjusted "expectancies" for delivery.

It probably should be said here that

the management did, at one time, however, attempt to augment and elaborate this informal weekly "report" by installing a large, "home-made" production-control-board, consisting of cork-board backing into which a clerk put vari-colored upholstery-tacks to denote the daily "position" of each current order in the production processes. Experimentally and without notice to the management, this board was intentionally de-activated for a period of five weeks, with its pins "frozen," without anyone in the organization discovering its inactivity. Left as it was at de-activation, it served for several months longer as an impressive management "show-piece" to the uninformed visiting firemen.

"Live" Information

To give management and the plant operators the same "live" information, the same advance-planning schedules, and the same daily production-status on each order and on all the orders—the plant load—as was now being built into the new production-control cards, a new, all-order, progressive report was designed and circulated frequently, by Ditto copies, to all management and department heads throughout the organization. This new "status and schedule of orders" report, carrying all pertinent order information except costs, quickly effected a marked improvement in departmental synchronization and production timing. It subsequently was broadened in distribution to reach all branch offices and sales representatives, thus eliminating much previous guesswork in the sales field and a large percentage of the previous field telegraph and correspondence cost.

THE NEW: Revamped control card not only provides for but actually invites and requires all pertinent characteristics of the order.

CUSTOMER NO.		CREDIT PASSED		CREDIT HOLD <input type="checkbox"/>		ORDER RCVD:		CUSTOMER:		JOB NO.	
DELIVERY REQUIRED:		DRAWINGS SUBMITTED:		DRAWINGS APPROVED:		LOCATION:		JOB DESCRIPTION:		F. B. M.	
ANCHOR DWGS TO:		ON		ASSEM & ERECT DWGS TO:		ON		KD		FAB UNFB GLAM TOTAL	
ACTION DETAILING:		PATTERNS:		LUMBER:		EST ACTUAL		HDWE & IRON:		EST ACTUAL	
START		EST ACTUAL		EST		EST ACTUAL		EST		EST ACTUAL	
PRELIM											
REVISED											
FINAL											
IN PLANT											
COMPLETE											
ACTION LAMINATING:		EST ACTUAL		FABRICATION:		EST ACTUAL		TREATING:		EST ACTUAL	
WORK BY				EST		EST ACTUAL		EST		EST ACTUAL	
PRELIM											
START											
COMPLETE											
ACTION ASSEMBLY:		EST ACTUAL		ERCTION:		EST ACTUAL		SHIPMENTS:		EST ACTUAL	
WORK BY				EST		EST ACTUAL		EST		EST ACTUAL	
BIG BY											
SITE OK											
COMPLETE											
CUSTOMER				JOB NAME				JOB NO.			

Don't Hide Your Employee Benefits Under a Bushel

THIS DISCUSSION of employee communications takes into consideration only that phase which deals with telling employees of our benefit plans on the so-called "fringe" issues. The method evolved proved to be successful and therefore is worthy of consideration.

Our company has had a group life insurance plan since 1926. From time to time, additional benefits have been added until it now offers weekly sickness and accident coverages, hospital and surgical benefits for employees, as well as hospital and surgical benefits for dependents. The company has maintained a ratio of approximately 50% of gross premium payment.

By 1947 the company's average cost per employee per month, without administration costs, for all benefit plans, was found to be over \$46.00. The cost today, without Federal Old Age Benefits and Compensation insurance, is just over \$50.00.

Few Understood

Dealing with the oldest plan, that of group insurance, we learned that after 20 years of operation the only people who really understood the plan and its workings were three or four members of our insurance department. Claims were not filed and full benefits not received.

In addition, employees were unable to take adequate care of their estate planning problems. Even worse, some of our employees had not chosen to sign up for the insurance. This was the situation in 1946 when important additions to the plan were made and it became necessary to obtain new signature cards from our personnel.

To solve this problem it was decided to devise and perfect a simple, one-page, easily read summarization of all benefits. We scheduled a series of group meetings, which turned out to

A simple, one-page summary tells each employee in a most personal way about his own status and gains new respect for company benefit plans

this program for both ourselves and our employees.

Meetings Helped

Our employee group of some 500 people is widely scattered, being a typical oil production and drilling operation. First meetings were held with our superintendents and foremen. Top management was present, learning like the others about the plans and what we wanted to do.

All were readied for later group meetings of all employees for the same educational purpose. At these meetings more than 90% of our employees heard the plan detailed and had an opportunity to ask questions about it for the first time. Feeling that these meetings were a company affair, no insurance people were permitted to attend.

Response to our efforts along this line was excellent. Every one of our employees signed up for the plan, including those who previously had refused. The group insurance plan was now raised to a new high place in the respect of our employees.

We determined to focus the same kind of attention to all phases of the Company Benefit Program. Under the circumstances, cost, value, and so on, it was felt to be just plain good business to protect the investment by spending enough more time and money to make such a program thoroughly understood by all.

Booklet Succeeded

So we brought the entire company program together in a four-page booklet, made by folding a sheet 11 x 8½ inches in size. This is printed on front and inside. We call it the "status card" as it serves our employees, once each year, by giving each one in a most personal way his own situation with respect to employee benefit plans of the company.



By H. J. STROUD

Manager, Industrial Relations Department
Signal Oil and Gas Company
Los Angeles, California

be the keys to our successful program. In these meetings we used charts as literature. At the same time we worked on another chart which we hoped would do a better job of dealing with

On the top of the front cover of the status card is hand-lettered the name of the individual whose record is set out inside. Just below the name is the explanation: "Your personal situation with respect to employee plans of Signal Oil and Gas Company"; and below is the date and the pen signature of a vice-president.

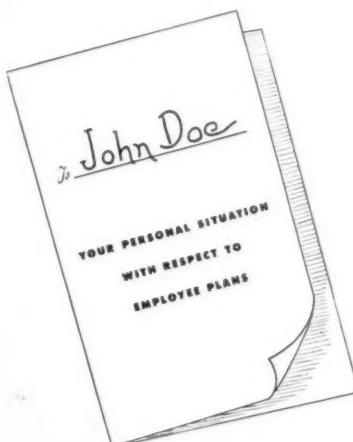
John Doe flips the cover on HIS status card with the company and reads:

SIGNAL OIL AND GAS COMPANY
Your Status Under Company Benefit Plans as of(date).....

Just below are ten printed boxes, five on the right and five on the left. These boxes contain each a single item of benefit. The first is "Annuity Per Month," with the figures "\$74.15," the last typed in to suit the record of THIS individual, who is on his 14th year, we learn elsewhere on the card.

Each of the 10 boxes deals with a separate benefit, including holidays paid, vacation and the several usual insurance benefits to employees and dependents. In nine places in the boxes are typed in the amount of the annuity, the life insurance, the amount of accidental death benefit, the individual vacation, the industrial accident leave, and so on, each insert dealing with *this particular John Doe* and no other person.

For two years these cards have been sent out to each of our 500 employees, with the figures that apply to each of them in the proper places. You will note that we cut through all the for-



mulas and regulations and tell in dollars and cents, in number of weeks and days, what the employee's exact benefit status is on a given date.

These booklets are mailed to the homes, and we feel safe in saying after two years' experience that our employees look forward to their receipt.

This year a delay occurred in sending out the cards and many inquiries came to us as to when they would be received. Also, the Accounting and Insurance departments noticed marked decreases in requests for information concerning their benefits.

We have used in the past, and will continue to use, informational booklets provided by the insurance carrier, as well as policy and increase slips. We also believe that our job of employee communications is never-ending, and while the status card has brought sound reaction, we would scrap it if our studies brought forth something better.

Most Important Points

Briefly, we believe the most important parts of this employee-communications program to be:

1. Full cooperation and support of top management.
2. The personal contact of well-informed company men with the entire employee group in a series of well conducted meetings on company time.
3. Clear, concise and attractive printed matter.
4. Getting such printed material into the home and the hands of the family by direct mail.
5. Periodic follow-up by group meetings and the direct mailing.

SIGNAL OIL AND GAS COMPANY

YOUR STATUS UNDER COMPANY BENEFIT PLANS AS OF

July 1, 1949

ANNUITY
\$ 74.17
PER MONTH

Per month starting at age 65 for life.
(Underwritten by Bankers*).

This is in addition to Social Security Benefits.

LIFE INSURANCE
\$ 8,000
\$ 7,417
TOTAL

- A. Group Life Insurance to retirement or termination [Equitable*]. (May be converted at retirement or termination to individual policies.)
B. Group Life Insurance to age 65 or termination [Bankers].

ACCIDENTAL DEATH BENEFIT
\$ 4,000

Also covers dismemberment insurance [Equitable]. This insurance is in addition to the Group Life Insurance shown above.

ACCRUED SICK LEAVE
26 WEEKS

At your base pay, less amount received by you from weekly Sickness and Accident Benefit Insurance as shown below.

SICKNESS & ACCIDENT BENEFIT
\$ 40
PER WEEK

For 26 weeks (Equitable).

PAID HOLIDAYS
7 PER YEAR

New Year's Day
Washington's Birthday
Memorial Day
July 4th
Labor Day
Thanksgiving Day
Christmas Day

PAID VACATION
2 WEEKS

Per year—3 weeks starting in 1951,
your 15th year.

HOSPITAL BENEFIT
\$ 8
\$ 6
PER DAY

- A. For you, plus \$160.00 for special services.
B. For each of your dependents, plus \$120.00 for special services (Equitable).

SURGICAL BENEFIT
\$15
TO
\$300

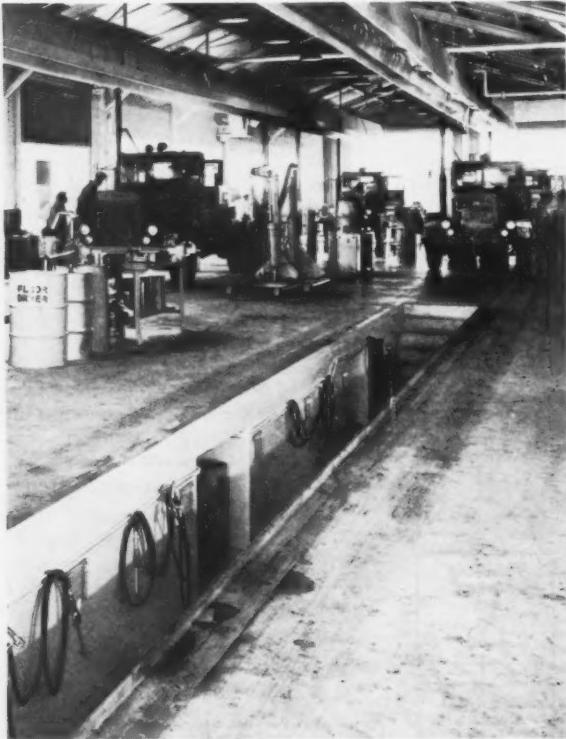
For you and each of your dependents (Equitable).

INDUSTRIAL ACCIDENT LEAVE
26 WEEKS

At your base pay, less amount received by you from Compensation Insurance.



PORLAND, ORE.—Rubber lining being applied to one section of a half mile of 30-inch pipe by workmen at Griffith Rubber Mills. This job, largest of its kind in the Pacific Northwest, is for Crown Zellerbach, carrying waste to prevent stream pollution.



DENVER, COLO.—Pacific Intermountain Express Co. develops two-lane "production line" for preventive maintenance, service, and lubrication for line-haul tractors. Scheduled inspections and overhauls are based on miles and hours of truck operation.

WESTERN PROCESSES
AND PRODUCTS
in
Today's **V**iew



LYNWOOD, CALIF.—Two 120-in. G&E hobs, largest on the West coast, recently installed at Western Gear Works. B. J. Bannan, works mgr. (left) and B. A. Bannan, vice president and general mgr., look on. Added equipment hobs 200-in. gears.



ABOARD U. S. NAVY FLEET REPAIR SHIP AT OAKLAND—The Navy's "Fixit" ship has 30 special technical shops manned by specialists. Thomas Covington, MM3c, Long Beach, (left) calipers shaft while Abb Woods, MR3c, Oakland, operates mill.

For Your Reference Files on Water Problems

The Industrial Quality Of Pacific Coast Waters

WATER is an important raw material in almost every industrial operation. It is used for washing, cooling, as boiler feedwater, as a component of the finished product, and in almost innumerable ways in process uses.

The types of equipment in which it is used and the conditions of its use with respect to quantity, velocity, and temperature are again almost innumerable. It is pertinent, therefore, to have as much information as possible on this basic raw material, as fundamental management data.

The cost of raw water is only part of the total cost of water use. To the raw water cost must be added possible hidden maintenance costs, such as replacement costs due to corrosion, costs of descaling boilers, replacing boiler tubes, etc. The magnitude of these extra costs depends to a great extent on the *quality* of the raw water; and may be reduced or eliminated in many cases by correct water treatment.

Influences of Water

Selection of plant site may be profoundly affected by the quantity and quality of water available. The final decision must rest on labor supply, transportation, price of land, power costs, etc. But sometimes the water supply is not considered in great enough detail, particularly as to its quality. This may result in water treatment problems serious enough that they outweigh some of the more commonly considered factors. Thus, information relating to the chemical characteristics of water supplies is essential to the location of most industrial plants.

In certain areas there is no demand for water-softening equipment; in many places there is little need for materials and appliances to combat

By RAY W. HAWKSLEY

Chemical Engineer

corrosion in piping, but usually selection of steam boiler plant equipment or water softening equipment will be influenced by the water to be used or treated. In any event, the chemical makeup of the water supply should be determined, and the water analysis taken into consideration as one of the important basic data.

The ideal water for most industrial use would be one of zero mineral con-

THE RAPIDLY growing concentration of industry in the West, and increased use of industrial water has brought the problems of water use, water treatment, and water conservation, into sharp focus. In the belief that these matters are of vital importance to Western plants, *Western Industry* presents a series of timely discussions on the pertinent phases of this subject, written from the standpoint of giving management the data necessary to formulate policy intelligently with respect to industrial water use.

While the subject is an extremely technical one, the author has treated it in interesting and understandable fashion, without sacrificing accuracy. It is our intention to publish a series of articles on this subject, which when taken together, will form a comprehensive survey of Western industrial water problems. Reprints of the entire series will be made available if sufficient interest is evinced by our readers. Comments and suggestions are invited.

Topics to be covered are as follows.

1. The quality of industrial water.
2. Boiler feedwater.
3. Cooling water.
4. Water conservation in industrial plants.
5. Corrosion.

tent, or water of distilled quality. Of course, this ideal is never achieved. The water available at any particular site always contains mineral impurities, and possibly suspended insoluble matter and bacteriological contamination.

Quality of Sources

Rain water is the purest naturally available water. However, even rain water contains an appreciable amount of contamination due to dust from the atmosphere, and dissolved gases (oxygen, carbon dioxide, and sometimes sulfur dioxide or hydrogen sulfide). Rain water is usually thought to be very soft, yet it may have a hardness as high as 43 parts per million, and never is actually free from hardness and other impurities.

Surface water (from streams, lakes or reservoirs) is ordinarily of fairly good quality. It contains dissolved impurities varying in amount and characteristics depending on the nature of the surface soil. In the West, hardness varies from 8 to about 50 parts per million for typical surface water supplies.

Water from deep wells usually contains the highest concentrations of dissolved minerals, due to prolonged contact with limestone, silica sands, and other minerals which are brought into solution by the solvent action of the water. Hardness in deep well supplies may run very high (1,000 parts per million or more). Suspended solids (insoluble matter) are usually low due to the filtering action of natural sand.

How Much Treatment?

The kinds and amounts of mineral impurities dictate the desirability of the water for any particular use. Some waters can be used "as is" with perfect satisfaction; but most require treat-

ment of one kind or another for best results and lowest overall cost, as a general thing on the West coast.

What kind of treatment is required should be the subject of special study in each individual case, by firms or individuals specializing in this type of work. Well engineered water treatment aims at producing a treated water suitable for the required use, and at lowest overall cost.

In every case, an economic balance must be struck between quality requirements and treatment costs. For example, while demineralization produces water of almost distilled quality, and the cold lime soda process only partially corrects hardness only, the latter is much cheaper and could be a suitable solution for certain specific problems.

Hardness: What It Is

The most important chemical characteristic of water is its hardness. A definition of hardness in water is "that characteristic in water which destroys the ability of soap to form a lather." In other words, hardness is a measure of the soap-destroying power of water. This soap destroying property of water is due to the presence of calcium and magnesium salts.

Hardness exists in water in two distinct forms, temporary hardness and permanent hardness, the sum of which is called total hardness.

Temporary hardness is sometimes referred to as "bi-carbonate hardness" or "carbonate hardness," as it is due to the presence of calcium and magnesium salts in the bicarbonate form. It is called temporary hardness because it can be removed by boiling. When a water containing temporary hardness is heated to boiling, the bicarbonate salts break down liberating free carbon dioxide gas, and producing insoluble calcium carbonate.

Permanent hardness in water is due chiefly to the presence of salts of calcium and magnesium other than those in the bicarbonate form. It is called permanent hardness because it cannot be removed by boiling, as in the case of temporary hardness, and is due chiefly to the presence of calcium sulfate.

Hardness: Its Effects

The balance between these two forms of hardness in any particular water has a great deal to do with the results which will be obtained through its use. If most of the hardness is in the temporary form, scaling will readily occur whenever the water is brought to boiling, or even at lower temperatures. This will take place in hot water heaters, steam boilers, heat exchangers, or other equipment where the tempera-

ture is raised. Unfortunately, most West coast waters are of this type.

Hardness produces scale in steam boilers, water heaters, hot water piping and fixtures, sterilizers, pasteurizers, cooking utensils; jackets of condensers, Diesel engines and other water jacketed equipment; bottle washers, pumps, and recirculating systems; bleach tanks, and in numerous other places where water is warmed, heated, boiled, evaporated or treated with alkaline materials.

Scale materially reduces the efficiency of any equipment in which it forms. One of its most serious effects is reduction of heat transfer, since it is

an insulator. Fuel losses in boilers due to scale can rise as high as 3% waste of the fuel burned under the boiler.

Scale can so drastically reduce the efficiency of heat exchangers that they become useless for their purpose. Periodic shut-downs for the purpose of removing scale impose a heavy expense in labor, cleaning materials, and damage to equipment through scraping, etc.

Hardness is indicated in water analyses as "total hardness." It is customary to express this value as "calcium carbonate," which means that the hardness is shown as though it were all present as calcium carbo-

Important Characteristics of Water Sources In California, Oregon and Washington Cities

ANALYSIS REFERENCE

- 1—The Industrial Utility of Public Water Supplies in the United States, 1932. Geological Survey Water-Supply Paper 658.
- 2—California Water Supply Statistics, 1940. Department of Public Health, State of California.
- 3—Independent laboratory results from various sources.

EXPLANATION OF KEY

- A—Soft water, suitable for boiler feedwater with internal treatment chemicals alone.
- B—Moderately hard water, can be used for boiler feedwater with internal treatment chemicals only, but presoftening should be considered for economy.
- C—Hard water. Excessive amounts of internal treatment chemicals required for boiler feedwater. Presoftening almost mandatory.
- D—Very hard water. Presoftening must be used.
- E—Suitable for zeolite softening.
- F—Hot lime soda softening should be considered for boiler feedwater, and may be more efficient than zeolite softening.
- G—Silica above desirable value. May be a problem in boilers.
- H—Special study recommended.

C A L I F O R N I A

Location	Key	Supply	Date of Analysis Ref.	Anal. Tot. Hardness as CaCO ₃	Alkalinity as CaCO ₃	Chloride as Cl	Sulfate as SO ₄	Silica as SiO ₂
Adelanto.....	BE	City	1940 2	58—98	80—124	14—19	15—150	—
Alameda.....	BE	"	1931 1	30—102	10—18	7—12	8—18	5—17
Albany.....	BE	"	1931 1	30—102	10—18	7—12	8—18	5—17
Alhambra.....	BFGH	"	1940 2	76—130	96—160	10—43	5—41	24—32
Alpaugh.....	A	"	1940 2	48	92	34	10	—
Alturas.....	BE	"	1940 2	109	128	90	62	—
Alviso.....	BFH	Well	1940 2	83	212	40	12	—
Amador.....	A	City	1940 2	15	16	5	2	—
Anaheim.....	CF	"	1940 2	101—150	192—212	48—51	31—42	—
Antioch.....	CF	"	1940 2	143	72	32	85	—
Arcadia.....	CF	"	1940 2	92—163	163—183	9—16	14—59	—
Arcata.....	A	"	1940 2	40	48	23	41	—
Atwater.....	A	"	1940 2	54	72	14	10	—
Auburn.....	A	"	1940 2	10	21	3	0	—
Azusa.....	CF	"	1940 2	196—222	189—195	8—9	38—43	—
Bakersfield.....	BFGH	"	1931 1	80—156	103—120	14—36	29—93	21—23
Banning.....	BF	"	1940 2	99	124	13	8	—
Bell.....	DH	"	1940 2	280	238	26	84	—
Benicia.....	DH	"	1940 2	190	132	61	99	—
Berkeley.....	BE	"	1930 1	30—102	10—18	7—12	8—18	5—17
Beverly Hills.....	DH	"	1940 2	159—554	226—392	28—172	25—175	—
Bishop.....	A	"	1940 2	34	28	4	12	—
Blythe.....	CFH	"	1940 2	123—260	182—264	97—106	78—108	—
Brawley.....	DH	"	1940 2	304	131	104	351	—
Brea.....	DH	"	1940 2	117—393	168—264	12—370	19—100	—
Burbank.....	CF	"	1940 2	150—208	160—237	12—21	50—54	—
Calexico.....	DH	"	1940 2	260	120	111	278	—
Calistoga.....	CF	"	1940 2	104—145	112—140	7—8	10—15	—
Carpenteria.....	DH	"	1940 2	247—320	252—268	29—30	92—96	—
Centerville.....	DFGH	"	1949 3	282	210	63	68	18
Ceres.....	BE	"	1940 2	110	148	85	10	—
Chico.....	CF	"	1940 2	85—144	92—148	6—18	0—8	—
Chino.....	CF	"	1940 2	170	156	9	19	—
Chowchilla.....	CF	"	1940 2	102—143	108—140	23—34	3—8	—
Clovis.....	BF	"	1940 2	80—94	96—100	9—56	6	—
Coalinga.....	DH	"	1940 2	372—904	122—152	184—750	993—1504	—
Colton.....	CF	"	1940 2	160	182	8	18	—
Colusa.....	BFH	"	1940 2	83—111	192—212	18—20	0	—
Compton.....	DH	"	1940 2	170—277	164—228	21—46	42—137	—
Corcoran.....	BE	"	1940 2	43—103	56—100	12—14	11—19	—
Corning.....	BE	"	1940 2	112	112	10	17	—

nate. This is merely a convention, adopted for convenience in calculations. The units in which hardness is expressed is either "parts per million" or "grains per gallon." The relationship between these two units is that one grain per gallon is equivalent to 17.3 parts per million.

Alkalinity: What It Is

Another important value shown in water analyses is the alkalinity. This is total alkalinity, and may be present as bicarbonates, carbonates, or hydrates. These three cannot be present together in one sample, as hydrate alkalinity

and bicarbonates are incompatible. The alkalinity, therefore, in any particular sample, will be present either as bicarbonates and carbonates, or carbonates and hydrates, or any one of the three. In natural raw waters, such as those tabulated below, the alkalinity is present entirely in the bicarbonate form. It is unusual to find even a trace of carbonate or hydrate in any natural water.

There is a distinct relationship between hardness, alkalinity, and the ratio of temporary hardness to total hardness in any given water. If the alkalinity of the water equals or ex-



R. W. HAWKESLEY, author of the accompanying article, is a specialist in water treatment. A graduate of M.I.T., he served four years in the office of the Inspector of Naval Material at San Francisco, Calif.

Location	Key	Supply	Date of Analysis Ref.	Tot. Hardness as CaCO ₃	Alkalinity as CaCO ₃	Chloride as Cl	Sulfate as SO ₄	Silica as SiO ₂
Corona.....	CF	"	1940 2	135—197	120—140	9—15	45—58	—
Coronado.....	CF	"	1940 2	158	54	274	115	—
Covina.....	CF	"	1940 2	157	148	16	23	—
Crescent City.....	A	"	1940 2	34—98	48—56	26—29	0—13	—
Culver City.....	DFH	"	1940 2	143—492	244—396	38—118	48—185	—
Davis.....	DFH	"	1940 2	153—393	232—356	21—41	15—58	—
Delano.....	BE	"	1940 2	98—112	64—78	32—71	50—100	—
Dinuba.....	DFH	"	1940 2	230	164	46	19	—
Dixon.....	DFH	"	1940 2	243	248	22	19	—
Dos Palos.....	A	"	1940 2	24	16	8	1	—
Dunsmuir.....	A	"	1940 2	52	48	6	0	—
El Centro.....	DFH	"	1940 2	253	120	110	276	—
El Monte.....	CF	"	1940 2	190—207	156—212	12—18	29—42	—
El Segundo.....	CF	"	1940 2	159	48	160	54	—
Emeryville.....	BE	"	1931 1	30—102	10—18	7—12	8—18	5—17
Escondido.....	BE	"	1940 2	117	112	17	31	—
Eureka.....	BE	"	1940 2	78	68	6	19	—
Exeter.....	BE	"	1940 2	103	132	32	23	—
Fairfield.....	DFH	"	1940 2	300	304	58	19	—
Ferndale.....	DFH	"	1940 2	210	160	25	29	—
Fillmore.....	DH	"	1940 2	852	320	70	740	—
Folsom.....	A	"	1940 2	14	20	5	4	—
Fort Bragg.....	A	"	1940 2	15	8	20	0	—
Fortuna.....	DFH	"	1940 2	190	212	22	42	—
Fowler.....	BE	"	1940 2	71	76	17	10	—
Fresno.....	BFGH	"	1927 1	56—105	93—187	6—24	5—9	63—82
Fresno.....	BFGH	Well	1949 3	116	130	10	24	77
Fresno.....	BFGH	"	1949 3	184	214	51	36	57
Fresno.....	BFGH	"	1949 3	224	274	52	64	59
Fullerton.....	DFH	City	1940 2	197	224	52	69	—
Gardena.....	DFH	"	1940 2	225	231	29	70	—
Gilroy.....	DFH	"	1940 2	150—217	156—168	25—42	10—21	—
Glendale.....	DFH	"	1940 2	142—230	120—184	15—22	21—69	—
Glendora.....	DFH	"	1940 2	243	204	18	34	—
Grass Valley.....	A	"	1940 2	13—31	16—24	3—5	0—6	—
Gustine.....	DFGH	Well	1948 3	228	180	47	232	26
Hanford.....	AH	City	1950 3	6	90	78	6	15
Hawthorne.....	DFH	"	1940 2	183—220	160—256	30—150	3—38	—
Hayward.....	DFH	"	1940 2	183	304	146	40	—
Healdsburg.....	DFH	"	1940 2	190	164	13	17	—
Helem.....	BE	"	1940 2	50	48	11	0	—
Hollister.....	DH	"	1940 2	82—330	68—232	24—95	15—218	—
Huntington Park.....	DFGH	"	1930 1	232	236	23	87	23
Imperial.....	DFH	"	1940 2	260	120	111	278	—
Indio.....	BE	"	1940 2	102	60	12	12	—
Inglewood.....	DH	"	1940 2	214—300	188—286	30—85	64—100	—
Iseton.....	CH	"	1940 2	138	228	255	29	—
Jackson.....	A	"	1940 2	28	24	5	2	—
King City.....	DFH	"	1940 2	328	224	75	185	—
Kingsburg.....	BE	"	1940 2	115	112	35	23	—
Laguna Beach.....	CF	"	1940 2	144	184	31	31	—
La Habra.....	DH	"	1940 2	130—327	140—268	13—107	6—115	—
La Mesa.....	BE	"	1940 2	85	111	27	14	—
Lancaster.....	BE	"	1940 2	78	108	10	10	—
Lemoore.....	AH	"	1940 2	37—43	160—200	24—145	4—8	—
Lennox.....	CF	"	1940 2	157	172	24	62	—
Lincoln.....	A	"	1940 2	10	21	3	0	—
Lindsay.....	DH	"	1940 2	201—420	104—160	118—965	34—65	—
Livermore.....	DH	"	1940 2	226—343	192—308	22—75	28—75	—
Lodi.....	BE	"	1940 2	88—134	80—132	13—38	12	—
Lomita.....	CH	"	1940 2	153	316	130	4	—
Lompoc.....	DH	"	1940 2	487	308	49	123	—
Long Beach.....	A	"	1940 2	31	140	27	47	—
Los Angeles.....	CF	"	1940 2	154	147	23	62	—
Los Banos.....	A	"	1940 2	42	28	10	27	—
Lynwood.....	DH	"	1940 2	237—380	220—252	38	300	—
Madera.....	A	"	1940 2	42—68	76—112	17—26	6—8	—
Madera.....	AGH	Well	1949 3	50	66	17	12	68
Manhattan Beach.....	DFH	City	1940 2	197—250	188—240	75—124	11—46	—
Manteca.....	BE	"	1940 2	90	124	17	12	—
Martinez.....	BE	"	1940 2	114	84	60	44	—
Marysville.....	BE	"	1940 2	83—103	108—132	12—22	10	—
Maywood.....	DFH	"	1940 2	183—220	188—200	34—41	37—57	—

Tabulation of city water supply facts and text of article to be continued next month

Third in a Series

IMPROVING MACHINABILITY

by heat treating steel

• This series started on page 52 of the September *Western Industry* with a discussion of machinability and general benefits resulting from heat treatment. The second installment, on page 50 of the October issue, discussed important physical properties of carbon steels which affect machinability.

IT HAS, so far, been shown that machinability is affected by the following metallurgical conditions:

1. Tensile-ductility relation—controlled by heat treatment and/or cold working.

2. Chemical analysis—also treatments such as sodium-bisulfite, and presence of solution and carbide-forming alloys.

3. Microstructural uniformity—and grain size; controlled by heat treatment principally, but affected by analysis and mill technique.

It might seem that since the factors affecting machinability are known, and since we know something of the natural reaction of all of these factors and can control them to some extent, that arbitrary specification of a steel for machinability should not be too difficult.

Operating Limitations

But there are still two more variables which have not thus far been brought into the picture. First, experience has shown that there are several different types of machine cuts, each of which is favored by a different strength to ductility relation. Second, there are operating limitations on existing annealing equipment which must be taken into account.

Evaluating the performance of various structures as they are subjected to various types of machine operations is more an art than a science.

So far as the general character of the micro-structure of a steel for machining is concerned, it is probably safe to say that uniformity and suitable grain size are required, that chemical treatment may be attempted, and that the analysis of the material is fixed by the minimum physical re-

quirements of the product for field service.

These conditions may be considered as preliminaries from the standpoint of heat treatment for machinability. The next consideration is, what results may be obtained by varying the heat treatment ductility-tensile relationship to accommodate the type of cut or operation to be performed?

We have therefore presumed that an optimum tensile to ductility relation exists for every material, but this is not strictly true. Actually, several optimum conditions may exist for every grade of steel.

Some machine operations will tolerate a high degree of ductility, and it is logical to lower tensile strength accordingly by annealing to take advantage of this fact.

Drills, for example, will often be found to perform best in relatively highly spheroidized structures, especially in the higher strength alloys.

A broach, on the other hand, would be apt to load up in a highly ductile structure, and instances have been observed where such structures literally pulled teeth out of broaches.

As another example, if we consider A-4140, it will be possible to obtain a full range of results in annealing, and an optimum condition can definitely be established for any operation with a little experimentation; perhaps 20%

spheroidized—balance lamellar pearlite; would be indicated for a form tool operation on a screw machine.

Another operation on the same machine, say drilling, would possibly require a much higher degree of spheroidization for best machine efficiency.

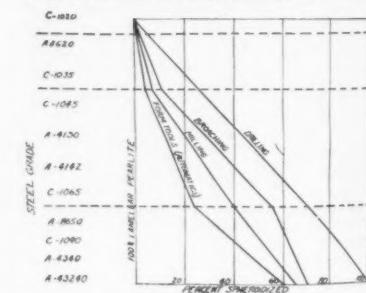
A planing operation on the same material would require a very low degree of spheroidizing.

In Figure 6, we show an idealized specification of structures which has been judged to give best machine results for several grades of steel listed in order of increasing difficulty to machine.

Some of what has just been said with respect to variation of degree of spheroidization for optimum results on different operations is illustrated. It will be noted that for any grade, drilling requires the highest degree of spheroidization and milling, turning, and other operations vary downward in degree of spheroidization.

In practical application there are two ways to make use of such information:

Figure 6—Estimated degree of spheroidization recommended for various steels and operations. Dashed horizontal lines divide grades into layers corresponding to four classifications outlined in article.



tion. If the material is being stocked for a variety of jobs, as in a warehouse, it would be desirable to specify metallurgical conditions best suited to a wide range of possible operations.

Often a steel may be specified to a structure suited to one or two or three operations on a particular job. This latter procedure allows for closer specification because if a known series of operations does not include drilling, it would be possible to shift the specification to include a lower and narrower degree of spheroidization, more nearly the average of the structure required for the operations contemplated.

So far we have theorized on ideal conditions, deliberately ignoring many mechanical operating factors which we feel do not fall within a metallurgical category. However, it is impossible to evade the responsibility for execution of the theories where annealing cycles are concerned.

Heat treatments are truly a metallurgical function in every respect; control equipment, technique, and even personnel. Therefore, the theoretical metallurgist having outlined the ideal may find himself confronted with orders to meet his own specifications.

This fact accounts for the wide degree of latitude permitted under most specifications.

Today's Techniques

It is well known that much of the high capacity annealing equipment in this country is worn out and outmoded, and is not capable of the precise results that might be most desirable. During the last few years of forced production it became common practice to load furnaces to and beyond capacity in order to increase output.

Machinability characteristics of steels suffered in such cases because of the varying rates of heating and cooling that prevail throughout a load. Control of atmosphere, uniformity of heat application, instrumentation, and better technique are now available and, in some cases, have already been adopted in industry.

Figure 7 shows an annealing furnace of the continuous type for normalizing and tempering of forgings.

The usual practice for treatment of lean alloys in these continuous furnaces is to normalize at 1650° F. in the first unit, partially air cool on the transfer belt, then reheat at 1300° F.

Normalizing requires from 20 minutes and up, depending upon section size, and drawing requires from 20 minutes and up, depending upon section size and alloy content.

This procedure has been applied with good results to materials falling

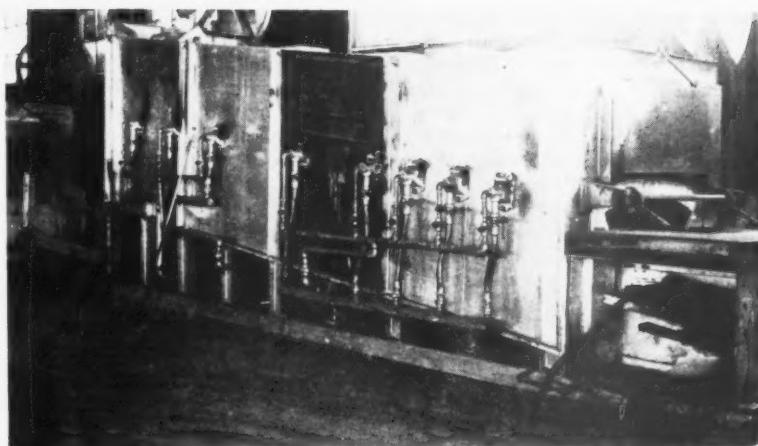


Figure 7—An annealing furnace of the continuous type for normalizing and tempering forgings. High temperature unit is in foreground; tempering unit is to left.

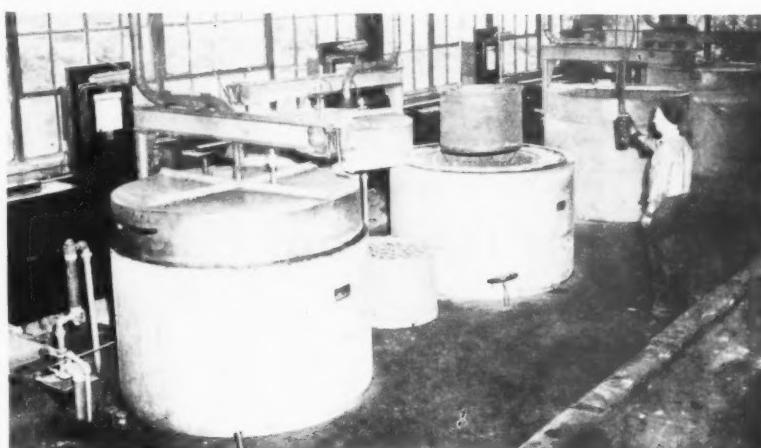


Figure 8—Modern electric furnaces of the circulating atmosphere type with automatic temperature control. Such equipment produces a good quality of annealing.

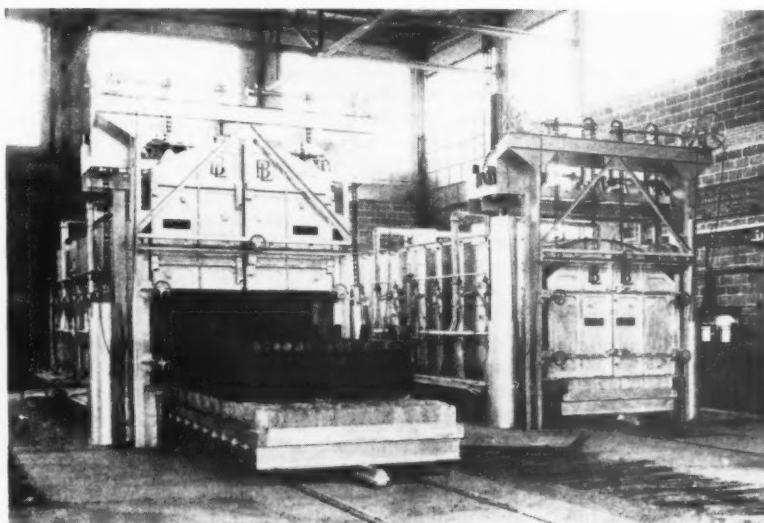


Figure 9—Car-type annealing furnaces for bar stock showing method of racking to insure uniform heating throughout the load by circulation of gases through bars.

within Classification "III," Figure 1. In general, the metallurgical structure produced is about 25% spheroidized and answers the requirements for general purpose machine requirements.

Considerable modification would be required to increase the duration of the heating cycles if steels in Classification "IV" were to be treated.

In some plants the requirements for the prolonged annealing cycles required by highly alloyed steels have been minimized. Consequently, batch-type annealing equipment has been relied upon.

In Figure 8 we show a view of some modern electric furnaces of the circulating atmosphere type with automatic temperature control. Such equipment produces good quality annealing both from the standpoint of structure and surface condition in contrast to the results obtained in semi-muffle and open-fired furnaces.

In annealing of bar stock there is a very difficult problem in attaining uniformity. As was mentioned earlier, deep close-packed loads have a ten-

dency to cool at different rates throughout the load.

In Figure 9 we show a car-type annealing furnace which is designed to overcome irregular heating and cooling rates by permitting free circulation of the furnace gases around the bars.

"Measuring" Machinability

In the course of the foregoing discussion we have shown how the ductility to tensile relation for a steel can be used as an index to its machinability. It seems probable that a quantitative evaluation of the machinability of any steel, given specific operating conditions, could be set up.

The advantage of such a method lies in the fact that tensile and/or ductile measurements reflect all of the more potent factors, microstructures, hardness, grain size, analysis, etc., which affect machining characteristics.

Through heat treatments it is possible to alter grain size, vary the hardness, improve uniformity of microstructure, and alter the form and quantity of free carbides.

In other words, through heat treatment it is possible to adjust to a marked degree some of the factors which affect the tensile and ductility properties.

It has been shown that other factors than tensile and ductility properties of a material affect machinability and treatments are known that take advantage of this fact.

Some of these treatments, mainly the ones that require analysis variations interfere with the properties under some conditions.

Cold working has a limited effect on machinability, and in high strength alloys this treatment is not sufficient to achieve the most desirable results.

Heat treating affords an effective means for improving the machinability of some of the materials where the conditions of service preclude the use of such additions as sulphur. Under high strength requirements where additions are precluded or ineffective and where other treatments are insufficient heat treatments may be the only solution to better machinability.

What Is the Ideal Fiscal Year?

THE IDEAL natural business year of any commercial organization ends on a date when inventories, receivables, payables, production, sales and employment are at their lowest ebb and when the normal twelve month cycle has been completed in the industry under which the business is classified. In many companies all or most of these factors do not occur at the same time and it then becomes necessary to choose the most important items in establishing the fiscal period.

Major consideration should be given to inventories, as several advantages accrue when the fiscal year ends on a date when they are at their lowest point. The actual labor cost in counting, sorting, listing and pricing varies in direct ratio to the size of the inventory. Usually a certain amount of estimating is necessary in any stock taking, thus the fewer the items the more accurate the valuation. Because of fewer items and slack operations there is a better chance to review slow moving and obsolete articles.

For budget purposes, the natural business year offers the best opportunity for a correlation of sales and production. If, for example, sales activity and projection is included in one year and production in another, the important benefit of a budget has been lost.

If independent auditors are used, the adoption of a natural business year would help ease the peak audit load during the first months of the calendar year and would permit a more economical and efficient audit.

More complete and reliable financial statements would probably be another result of the fiscal year. Incomplete and fluctuating transactions, such as inventories, would be at a minimum. Receivables and reserves would be lower and subject to less estimating.

By
JOHN A. SELEINE

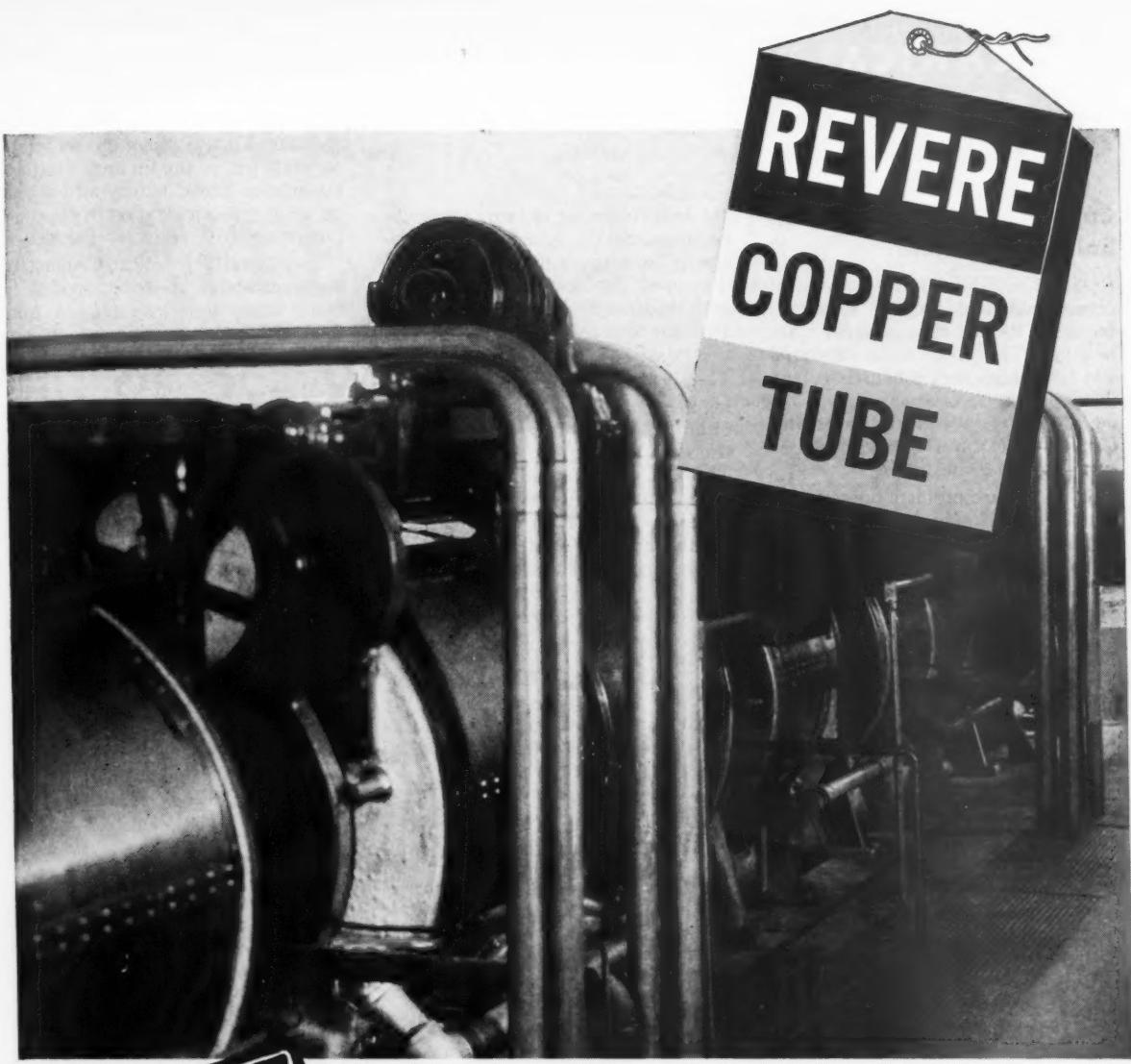
Controller, Harvill Corporation
Los Angeles, Calif.



The foregoing factors, plus fewer payables and certain accruals, all tend to show a balance sheet with a more favorable working capital position, with estimates applying against the smallest amounts to be carried into the new year.

To change from a calendar year to a fiscal year requires permission from the Commissioner of Internal Revenue. The application must be made on a special form for the purpose and be filed at least sixty days prior to the close of the fractional year to effect the change of the accounting period. A return for the fractional part of the year is required and the general rule is that the short period is raised to an annual basis and the tax computed on the proportionate part of the annualized income.

It is quite apparent that inventories should be the prime consideration as this item will usually reflect the lowest point in production and sales. Industry and trade associations can normally be of assistance in defining the natural business year in their fields. The close of this year is the logical time to close your fiscal period.



for Industrial Piping

● Revere Copper Tube is frequently recommended for conveying industrial fluids in paper mills and other process applications. This tube comes in a variety of tempers, lengths and gauges which make it suitable for a wide range of such applications as well as for heating, plumbing and air conditioning installations.

Revere provides Copper Water Tube for use with solder or compression fittings; type B Copper Tube for installations requiring outside diameters of SPS pipe and brazed fittings; Red-Brass Pipe and Copper Pipe for use with threaded fittings. Every length of Revere pipe and tube is marked with the name Revere. Always look for this mark

as your assurance of fine, uniform quality.

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TECHNICAL SHORTS

Copper and Steel Sandwich Solves a Problem

ROSSLYN METAL, a sandwich of copper core and stainless steel surfaces, has its first application in space heating. The new metal material which has high heat conductivity and durable, easy to clean surfaces is being used by the Wesix Electric Heater Company of San Francisco, pioneer manufacturer of heaters.

A bothersome problem presented in a strip type electric heating element for use in air was solved by employing this new metal. While copper is

the best conductor of heat among the common metals, it oxidizes at relatively low temperatures and in time is destroyed. Surfacing the copper core with stainless steel protects the copper from the air.

A Rosslyn Metal metal sheath is formed by Wesix to enclose the heating element. This shape provides additional surface area necessary to transfer heat to air more rapidly. These fins are longitudinal to the element, possible only with copper core material capable of moving heat swiftly. Such fins are considered superior to transverse fins by Wesix,

which makes both, in that they are less expensive, require no welding, are more efficient and accumulate no dust.

The dust-free feature of the Wesix fin element is a result of two years of research. Elimination of dirt and trash prevents loss of the fin area. Dust accumulation would reduce airflow and result in appreciable drop in direct air pressure at the outlet of the heater.

Developed by American Cladmetals, Rosslyn Metal is being applied in many heavy industries ranging from food processing equipment to aircrafts.

Safeguarding a Wire Brush On a Bench Grinder

WHEN a wire brush is substituted for a grinding wheel on the bench, a good safety precaution to take is to remove both the tool rest and the wheel guard. But when you do that, there are other

Trailer "Squats" to Take on Loads

WESTERN trucking industry has done it again: this time they have developed a truck (semi-trailer) that "squats" to take on loads on the ground, and rises to discharge them on a dock.

Standard Trailer Company, San Leandro, California, owners of patents covering this rig, are now manufacturing units like the one pictured, primarily for use of trucking lines on local pick-up and delivery. Three of them are currently in use in the Bay area alone, by truck lines.

These units, with one axle and a 10-ton limit, weigh about 7500 lbs. gross. Common-size boxes are 8' x 16' outside, with 7' headroom inside. They are made of steel, generally, or any other material the purchaser may desire.

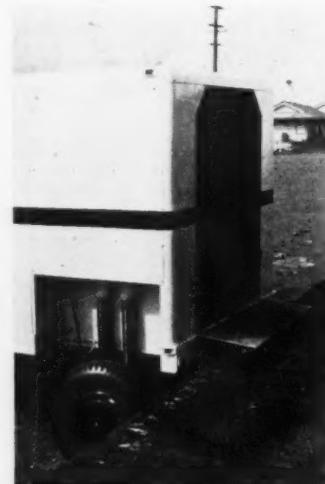
All units come equipped with

standard trailer hitch, so that they are immediately interchangeable with any tractor now in service. They all operate exactly the same as any standard conventional semi-trailer.

Standard is at present manufacturing a larger unit of the same type, this one with a 15-ton limit. It will be 8' x 22' outside, with 7' headroom inside, with two axles, and have an estimated gross weight of 9200-9300 lbs.

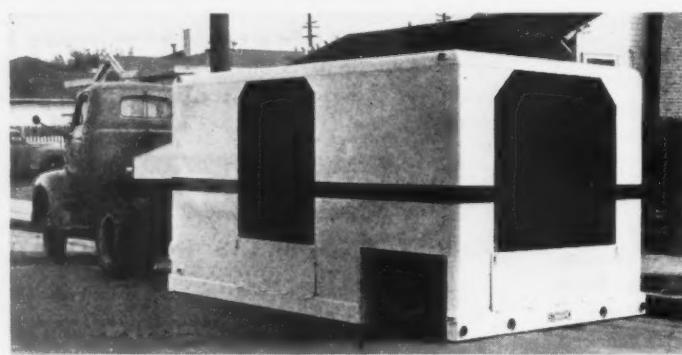
Single wheels are used on all models rather than duals, to provide greater payload volume inside the box. All units are provided with new hydraulic brakes, which can be booster-operated.

Recommended running height is 12" off the ground, to provide a low center of gravity for the load. A standard hydraulic power



takeoff on the tractor is hooked up to the hydraulic cylinder control on the semi-trailer by a quick detachable line. All units are equipped with an emergency hand pump, built in, which operates independently of the power take-off. And all units have a patented load leveller as standard equipment, which insures that the trailer runs on an "even keel."

A simple control valve mounted in the cab or at any convenient spot permits the entire trailer bed to be raised or lowered to match the exact height of the loading dock or platform. Positive mechanical locks prevent lowering of the trailer while traveling.



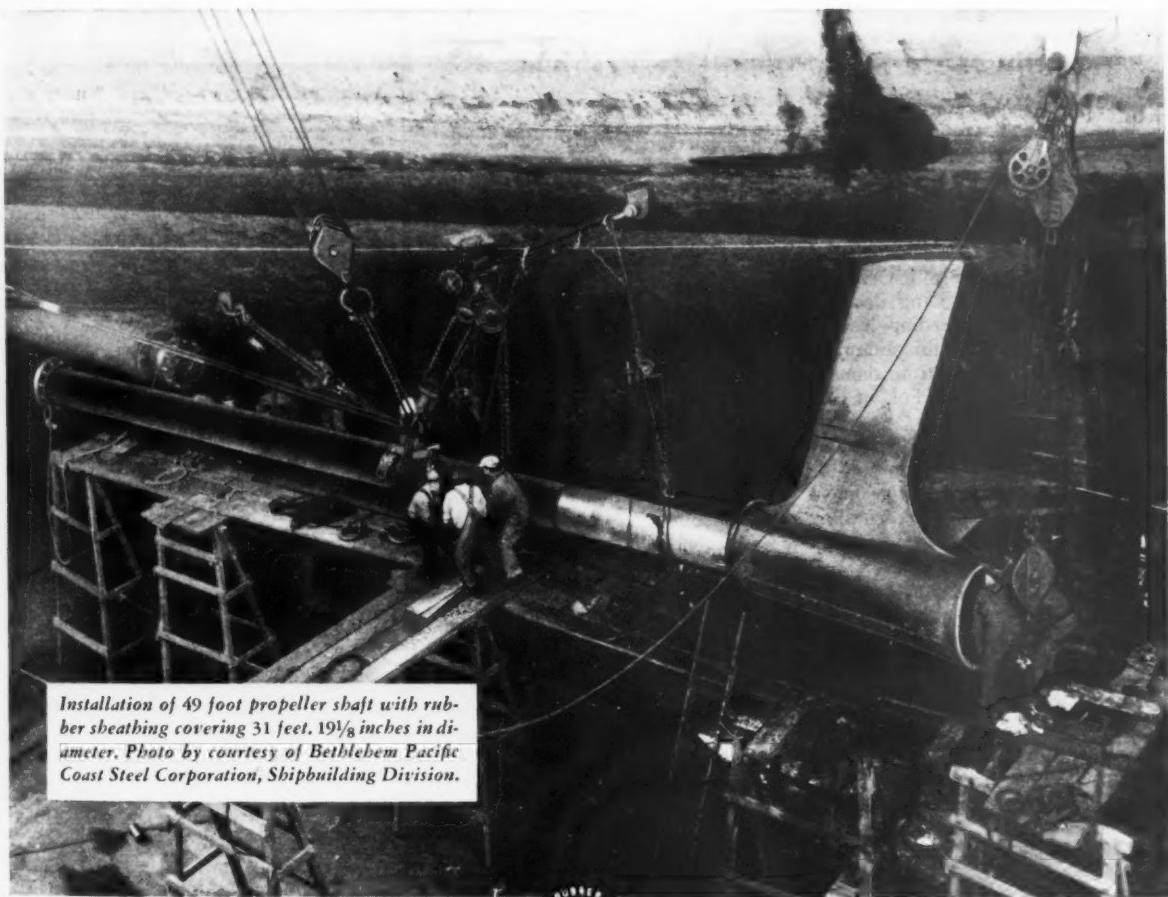
Taking the BITE out of Sea Water

Developing new uses for Industrial Rubber Goods to meet the problems of industry is the ever-present objective of research engineers at PIONEER RUBBER MILLS.

For instance, the common industrial problem of corrosion and pitting due to electrolytic and chemical interaction on metals is particularly acute in the Marine industry. Due to their rubber goods "know-how," PIONEER research and production engineers were given the challenge of developing a rubber compound to resist corrosive attack on tail shafts of a ship.

Pictured is the result—a 26 ton rubber sheathed tail shaft being installed on the 22,500 ton passenger liner, President Cleveland. This 3/16" thick PIONEER rubber sheathing, vulcanized on 31 feet of the 49 foot tail shaft, protects the shaft from the sharp bite of sea water. Thus, by increasing the shaft service life and cutting down the frequency of expensive dry docking for shaft replacement, costs are greatly reduced.

This is but another example of the part PIONEER plays in solving costly industrial problems. There are many such problems, both large and small, in which rubber, combined with PIONEER "know-how," can help increase efficiency and cut costs. PIONEER invites discussion of your problems. Your PIONEER RUBBER MILLS' Distributor can quickly show you why PIONEER has been the leader in Industrial Rubber Goods since 1888.



Installation of 49 foot propeller shaft with rubber sheathing covering 31 feet, 19 1/8 inches in diameter. Photo by courtesy of Bethlehem Pacific Coast Steel Corporation, Shipbuilding Division.

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considerations too—also safety measures.

Because of the bending of the wires, the gap between bristles and tool rest is not constant, creating a hazard.

The guard around a grinding wheel is designed primarily to contain fragments of any grinding wheel that might

burst. That danger is not present with a wire brush in operation. However, removal of the guard exposes the spindle end which can be dangerous.

This should be covered to prevent clothing from wrapping around the spinning nut and drawing your body against the brush.



Adjustable Sling Speeds Car Loading

WHEN the Army takes a car up for a ride, in transit to a ship's hold, they do it fast. In fact, they do it almost twice as fast as they used to, since this new loading device has come into being.

A new type of automobile sling, readily adjustable to new and old model cars, is proving itself of great value in speeding loading and discharge of automobiles and in protecting them from damage at the San Francisco Port of Embarkation.

A recent report by Port Terminal Operation Division said the sling has speeded loading almost 100 per cent, permitting handling of eight vehicles an hour as against a rate of four and one-half attained by use of rope and wire slings.

In addition, the report stated, sling-caused damage has been "completely eliminated."

Of simple construction, it combines qualities of strength, flexibility and adjustability necessary for safe hoisting and lowering of automobiles of varied design in confined areas. It insures safer and better handling of new model cars having wider and lower fenders and larger bumpers.

The sling consists of a rectangular head frame of $1\frac{1}{2}$ inch heavy pipe and two wheel cradles of $1\frac{1}{2}$ inch round bars joined by half-inch wire rope. The head frame is adjustable from front to rear so that the wheel cradles can

conform to the varied wheel base lengths of modern automobiles, creating an inclined sling.

The inclined feature shortens the overall length of larger autos to permit their loading through the smaller hatch openings found on C-4 and ZC-2 type freighters. A 17-foot, 8-inch car placed in inclined position at a 30-degree angle is thus shortened to 16 feet between perpendiculars.

Another feature of the head frame is the rigid support it provides the sides of the sling so that no part of the sling except the wheel cradles touches the automobile.

The wheel clamps are unique in design and operation. They consist principally of two finger hooks which go around the top side of the tire and which are joined together in a hole-punched bar which permits adjustment to the wheel diameter. An ordinary pelican hook is used to tighten the clamps and make them fast.

This arrangement makes it possible for the wheel bars to slip out from under the wheels if the bumper should become fouled on a 'tween-deck coaming in the hatchway.

The sling was invented by Lt. Col. Herman R. Fleming, a Transportation Corps officer formerly on duty in Terminal Operations Section of the Terminal Operations Division at the Port and now serving overseas in the Pacific.

New Featherweight Raw Material Developed

ONE of the latest raw materials to be offered as a result of research is feathers. Plain poultry feathers, with about 40,000 tons available commercially each year, from poultry dressing plants.

Products commercially possible from processing feathers include: a component of mixed feathers, an organic fertilizer, a plaster retarder, and a fire-control foam agent. Other uses will doubtless come to light.

Information on the process, the product, and the probable cost of manufacture is included in a report (AIC-274) authored by Charles H. Binkley and Otto R. Vasak, at the Western Regional Research Laboratory, Albany 6, California. That laboratory is under the U. S. Department of Agriculture's Bureau of Agricultural and Industrial Chemistry.

A brief but interesting discussion, this report presents information on the process involved, equipment and investment needed, total processing costs, the product, and its uses.

So opens the way for an entirely new industry. This places the poultry producers in much the same position as the meat packers, who "use everything but the squeal."

Dry Ice Can Be Deadly

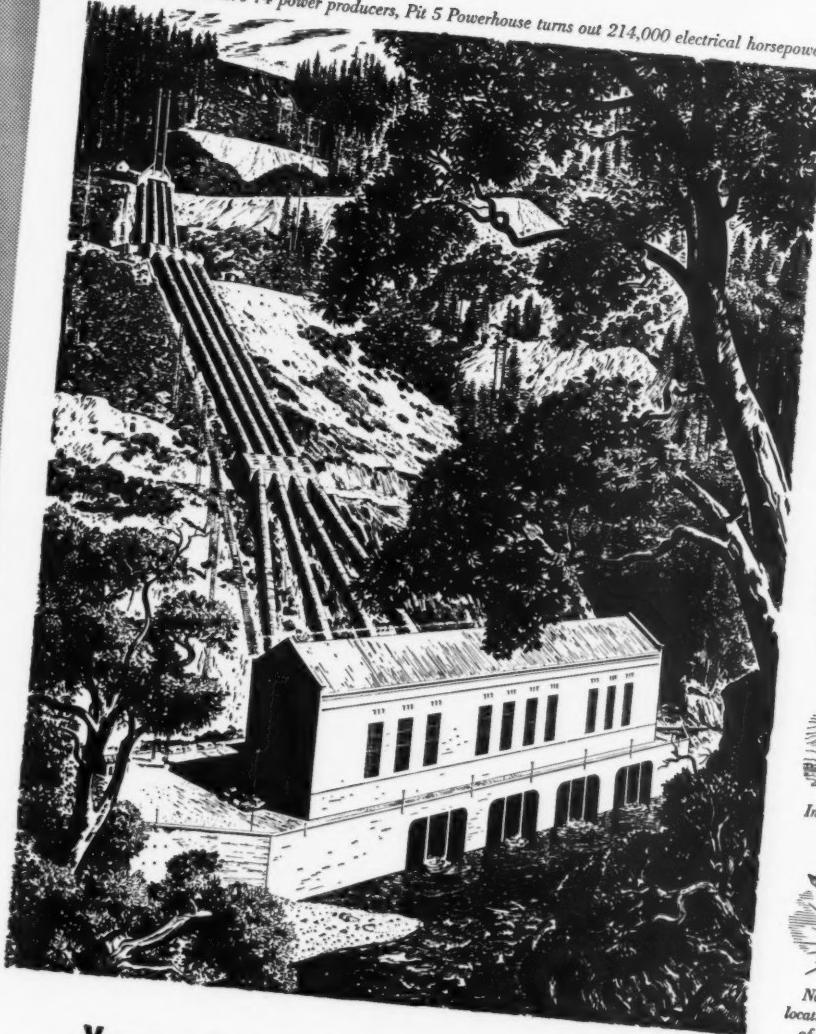
HARMLESS though dry ice may appear, it can become a deadly weapon if mis-handled. Some people are still under the mistaken impression that it is practicable to confine dry ice so that the gas cannot escape. Such is not the case. Investigation into the tragic death of three longshoremen who were overcome by carbon dioxide gas from dry ice brought out the importance of that knowledge.

It is important, not only industrially but also at home. A young boy, for example, lost an eye by putting a piece of dry ice he picked up on the street into a bottle of water, and then capping the bottle. Pressure soon built up as the solid CO₂ turned into gas, and the bottle shattered with explosive force.

If confined in a space small enough in relation to the amount of original solid, the CO₂ gas can develop a pressure of more than 800 pounds per square inch—if the container doesn't break first.

There is a chance that men handling material packed in dry ice may try to make a few "firecrackers" with bottles or cans, without realizing the deadly potential of the refrigerant.

One of P. G. and E.'s 74 power producers, Pit 5 Powerhouse turns out 214,000 electrical horsepower.



Wonderful living...plenty of room, sunshine...fine schools, recreation.



Abundant resources close by...metals, oil, lumber and many others.



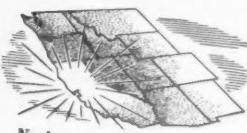
Fine supply of skilled and semi-skilled workers who want to live in the West.



Excellent transportation...land, sea and air...reaching all the world.



Industrial sites...lots of strategically located land available.



Northern California's accessible location can put you right in the heart of this 20 billion dollar market.

You can best serve all the West from Northern California

There's a mighty market in the 11-state West...as many businesses have found. It's the nation's fastest growing market—2.3 times the national average. In centrally located Northern California the population has jumped over 50% in ten years. California's individual income has tripled—farm income is over two billion dollars a year.

In this growing area, P.G. and E. is completing its great postwar expansion program—largest in the country. By mid-1951, nearly 4,000,000 h.p. will be available in our interconnected system. We'll keep building ahead of the growing demands of the area. Rates are among the nation's lowest. Write us for exclusive studies of industrial sites.

PGE

Pacific Gas and Electric Company,
San Francisco, California

To bring more industry into your community,

we're advertising Northern California's advantages to millions of out-of-state businessmen. This campaign explains why it's wise to buy, build and expand in the heart of the industrial West. The nation's top managers and officials will read these sales messages as they appear in *Time*, *Newsweek*, *U.S. News and World Report*, *Business Week*, *Forbes*, *Fortune* and *Wall Street Journal*.

QUALITY CONTROL: West Lags in Use of New Techniques

AS WOULD BE expected, the majority of plants covered in *Western Industry's* survey of operating methods and practices employ quality control in some form. It is interesting to observe that a relatively higher proportion of the plants in Oregon and Western Washington do not employ quality control. Could this be correlated with the type of manufacture?

The description as to the forms of quality control is so varied that it is difficult to classify. It is apparent, however, that in the majority of cases inspection and laboratory testing is used to control quality.

Both Eastern and Western Washington report majorities where there is not a separate inspection department. Could this be due to the type of industry?

Statistical Method

The majority of the inspection departments, in all districts surveyed, report to top management. This has been found the most effective organization for most plants throughout the country and is almost a must where quality is of great importance. Generally, the inspection department needs the backing of top management to uphold highest quality. The majority of Western plants have yet to make use of the statistical quality control techniques. Southern California seems to be most active of Western areas along these lines. Recent increasing interest in Northern California is manifest by establishment of a San Francisco Bay

By W. H. LEWIS
Quality Control Engineer, Ontario (Calif.)
Works, General Electric Company
and
Western Regional Director, American
Society for Quality Control



Area Section of the American Society for Quality Control.

Use of statistical methods is much more widespread in the Middle West and Eastern United States than in the West, as shown by activities and membership of the American Society for Quality Control. All Western industry would do well to investigate statistical

quality control in view of improved quality and cost reductions claimed by plants using these methods.

There may be several plants that use both sampling and 100% inspection but at various points in their process. The survey does not distinguish this fact; however, it does show widespread use of sampling methods. In view of the rather limited use of statistical methods, one wonders how effective the sampling plans in use are in controlling or evaluating quality. Improper sampling can be very misleading. Statistically sound sampling techniques can be used with assurance and economy.

Whether or not 100% inspection is used might indicate many things:

1. Quality is such a minor consideration that 100% inspection is not necessary.
2. The quality of the product is so good that 100% inspection is not necessary.
3. The quality of the product is controlled by means of statistical methods during manufacture.
4. The product is accepted on the basis of samples.

Due to the variety of these situations it is difficult to evaluate the answer to 100% inspection. In general, 100% inspection should be regarded as an expensive procedure and every effort should be made to so control the quality of the process as to make 100% inspection of the product unnecessary. Unfortunately this ideal is often difficult to attain.

Incentives for Quality

The use of incentives for good quality and use of demerits for poor quality is not in wide use as indicated by the survey. These usually tie in with incentive wage payment plans. For example, some plants pay for good parts only. Much needs to be done to make such plans really effective.

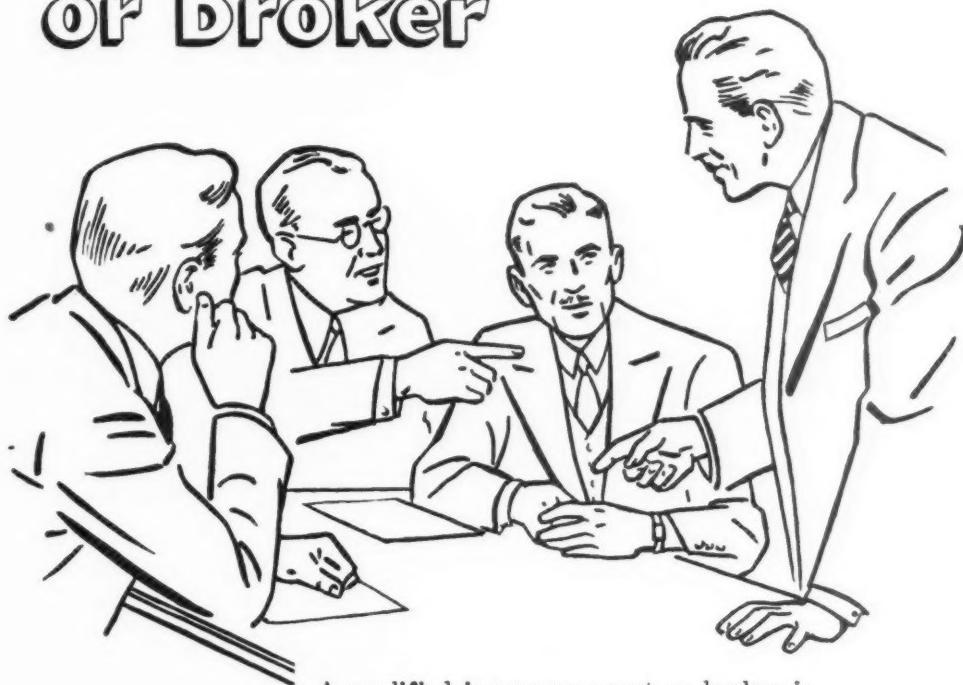
The percentage of material rejected would depend to a very large extent on the type of manufacture, hence, any comparative evaluation would be difficult. In the majority of cases the percentage seems reasonable; however,

*The spotlight has never been turned on operating methods and practices in the West in the manner employed in *Western Industry's* survey. Detailed questionnaires were filled out by the personal interview method in 211 industrial plants in the West, covering many phases of manufacturing operations. The survey also was designed to reveal comparative efficiency of Western industry with older industrial areas.

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Home Office, Sacramento

the number of plants that don't know what their percentage of rejections or scrap is, is rather high—particularly in Northern California.

Scrap and Re-work Costs

It is interesting to note the large variety of causes for scrap. If these are classified under men, materials, machines and process, a more understandable tabulation results. Men in general offer the greatest problem, but this is closely followed by process and material problems.

It is rather amazing in this day of modern accounting practice the number of plants that do not know what their scrap and rework costs are. Probably many managers would be shocked by the facts if they were available, and lose no time in trying to improve control of quality, improve process, etc.

Product Check Meeting Improves Quality

ALL PRODUCTION supervisors at the Bowman Biscuit Company, Denver, gather every Saturday morning for a product check. It is held for the presentation and detailed analysis of the quality of the product, as well as the job of packaging.

"The success of this work seems to lie in the fact that the supervisors learn by the comments and criticism of their fellow supervisors," President J. C. Bowman informs *Western Industry*. "In addition, the meeting provides an opportunity for a basis of understanding between the operators of the various de-

partments. The result is the development of a better sense of appreciation of each other's problems.

"Another good point of this meeting is that the program has invited a wide participation by all who are present. Only a few meetings were necessary to break down the existing barriers, with the result that everyone feels free to talk or add comments which contribute criticisms or compliments, as the case may be."

"Unquestionably, this simple idea has very definitely improved the job of policing quality control throughout our entire production organization."

The lack of any definite program for reduction of losses by so many plants probably is due to the lack of data that

is necessary to form a basis for action. Modern quality control practices would establish this much needed data.

Designations "Western," "Eastern" and "Mixed" indicate whether methods and systems were independently developed in the West, or formulated by eastern management or parent company, or are a combination of both. Numbers indicate number of plants.

Nearly every plant in survey uses quality control in some form

Southern California		Northern California		Oregon		Western Washington	
Yes	No	Yes	No	Yes	No	Yes	No
Western Methods....	26	3	Western Methods....	22	1	Western Methods....	24
Eastern Methods	8	...	Eastern Methods	4	...	Mixed Methods.....	2
Mixed Methods	4	...					

Eastern Washington		Idaho		Utah		Colorado	
Yes	No	Yes	No	Yes	No	Yes	No
Western Methods....	3	2	Western Methods....	4	...	17	1
Mixed Methods	2	...					

Statistical quality control still new; 54 plants employ it; 123 do not

Southern California		Northern California		Oregon		Western Washington	
Yes	No	Yes	No	Yes	No	Yes	No
Western Methods....	12	15	Western Methods....	5	14	Western Methods....	6
Eastern Methods	2	5	Eastern Methods	3	...	Mixed Methods.....	2
Mixed Methods	1	2					

Eastern Washington		Idaho		Utah		Colorado	
Yes	No	Yes	No	Yes	No	Yes	No
Western Methods....	...	2	Western Methods....	4	...	5	9
Mixed Methods	1					

Sampling procedure ran about 2 to 1; Score is 113 Yes; 61 No

Southern California		Northern California		Oregon		Western Washington	
Yes	No	Yes	No	Yes	No	Yes	No
Western Methods....	15	9	Western Methods....	18	2	Western Methods....	18
Eastern Methods	3	3	Eastern Methods	3	...	Mixed Methods.....	1
Mixed Methods	2	2					

Eastern Washington		Idaho		Utah		Colorado	
Yes	No	Yes	No	Yes	No	Yes	No
Western Methods....	2	1	Western Methods....	...	3	12	5
Mixed Methods	1	...					

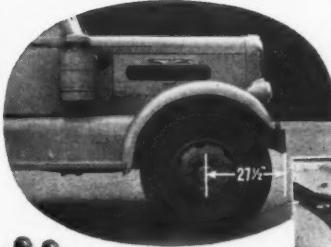
100% inspection still the old standby in most places; 127 Yes; 43 No

Southern California		Northern California		Oregon		Western Washington	
Yes	No	Yes	No	Yes	No	Yes	No
Western Methods....	24	3	Western Methods....	14	3	Western Methods....	7
Eastern Methods	5	1	Eastern Methods	2	1	Mixed Methods	2
Mixed Methods	4	...					

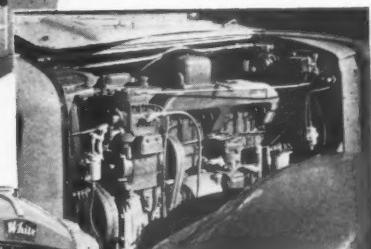
Eastern Washington		Idaho		Utah		Colorado	
Yes	No	Yes	No	Yes	No	Yes	No
Western Methods....	...	3	Western Methods....	4	...	11	5
Mixed Methods	1	1					

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Fresno Gives Industry A Good Deal

FRESNO, California, may or may not be a typical Western City. One thing it can lay claim to, however, is the old Western quality of initiative, because in Fresno there is a nucleus of industrialists who are genuine "sparkplugs" and "stemwinders," eager to see their city grow and prosper industrywise.

A short time ago they discovered that several industries that had been interested in locating in Fresno went elsewhere, because demands of \$5,000 per acre and upwards were too high for industrial sites.

Then these men put their heads together and began formulating plans to induce industry, rather than scare it off. Fresno city and county chamber of commerce obtained control of 320 acres zoned for heavy industry. That parcel is adjoining another 320 acres whose owners pledged cooperation in the overall program. Two railroads and the Golden State Highway run alongside that property.

Through the chamber's industrial committee, they launched a major industrial program hinged on providing attractive plant sites at reasonable prices and served by sewers, fire protection, and other facilities.

In April, members of the chamber began solicitation of funds with a goal of \$320,000. This was raised on the basis of \$1,000 notes bearing 4% interest annually, and that sum was oversubscribed by October first.

Incorporation papers were filed with the State, and the Fresno Industrial Site Development Foundation received a state tax-free title. The Foundation, composed of Fresno residents entirely, is a non-profit corporation

with its by-laws so written that no resale of property can be made except through the directors of the Foundation, thus eliminating speculation.

Preliminary estimates indicate that the land will be available at from \$2,000 to \$3,000 an acre, which is from one-half to one-third of the cost of land with comparable facilities elsewhere.

Pollution Rules in Washington

WASHINGTON'S Pollution Control Commission and industries on Puget Sound have reached an agreement that the latter shall dispose of their industrial wastes for the time being by piping them out a considerable distance into the Sound.

Among the minimum requirements set up by the Commission are the following:

Sawmills, veneer mills and other wood handling. Sawdust and slabs should not be allowed to be washed or leached into the water. Septic tanks to be cleaned by pumping and dry land disposal instead of into waterway.

Oil and like material. No bilge or ballast water to be dumped. No leakage or discharge into waters on ship-to-wharf connections. Tankers, tank cars, trucks, etc. to be equipped to prevent oil spillage into waters. Round-houses to collect oil and oil-and-water mixtures; adequate separators required for separation of both heavy and light oils from these mixtures. In industry all waste oils and lubricants should be collected in containers for proper disposal wherever possible. If oil emulsions are discarded, emulsion must be broken down and oil recovered for proper disposal. General

waste from processes containing oil must be passed through adequate and well operated oil separator before being discharged into waters.

Pulp and paper mills. Fiber loss from beater and machine operations to be kept to 1% of production by effective Save-alls and/or by closing or partially closing the white-water system.

Canneries. For vegetables and fruits, 20-mesh screen required for removal of suspended material from the processing wastes. Cooling, condenser or other clean waters may be by-passed. Commission to approve screen in advance. Screenings and other solid material may not enter waters. For fish and shellfish, discards may not enter state waters. For dehydrated potatoes and fruits, screens must be used.

Films Effective For Training

FILMS for training supervisors have proved to be very effective in the experience of the Rocky Mountain Textile Mills, Inc., of Denver.

Employing less than 100 people, with a supervisory force of 14, the management of this plant had been considering a supervisory training program for some time. The first of the meetings was prompted by the Mountain States Employers' Council announcement of suitable films on hand, plus catalogs of films available from elsewhere.

Each meeting was planned around one film, and the various problems presented on the screen were brought down to the local plant level during the discussion period. For example, in the film dealing with working conditions, the problem of correct tools for the job became the subject of a half-hour discussion after the film. Every supervisor had some idea to contribute in order to improve the tool situation in the plant.

The management knew that the training film alone would not do the job; but, together with the discussion, some important employee relations principles were gotten across. One of the officials said, "We know that our employee relations have definitely improved as a result of these meetings."

Employees Move Along With Plant

BY OFFERING inducements for moving along with the plant from Los Angeles to San Leandro, General Foods got 40% of the non-supervisory employees to make the transfer and thus was able to start operations in the new location with a minimum of confusion. Fifty-four of the eligible

Electronic Engineers Hide Behind Mike

IT'S THE COBBLER'S children that go without shoes, and it's the electronic engineers that seem to be able to engineer everybody's problems but their own.

For example, a couple of years ago the electronic engineers came up with a microphone about the size of an English walnut. This mike has already replaced, to a good extent, the older, more gigantic style used generally for radio broadcast.

Television studios use them. Movies use them. Many public address systems use them. But not the electronic engineers . . . at

least, not at the recent annual IRE convention in Los Angeles.

Speakers' platforms were equipped with PA systems that functioned admirably, but the mikes used were stationary and large, almost completely hiding the speaker's face. Hence, the speaker had no freedom of movement either to blackboard or screen. When he moved away from the podium his audience could no longer hear him distinctly.

At a cobblers' convention this would be understandable, but not at a gathering of electronic engineers.

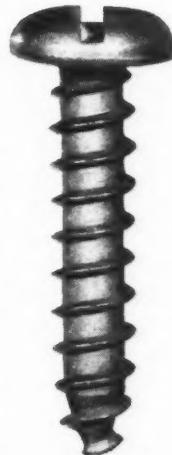


TEAMING UP... to Keep Costs Down

Ben Faragalli is an assembly man in one of RCA Victor's television manufacturing plants. His job is final assembly of RCA Victor TV receivers.

His experience is that RB&W tapping screws help him keep up his production and turn out quality work. Their surfaces are always smooth and clean—so they are easy to handle. Their dimensions are always accurate, their threads sharp, their heads strong—so they speed his work and reduce rejects.

Ben helps RCA Victor keep assembly cost low—which is reflected in lower total manufacturing costs and more profitable business.



Joseph Luzzi is in charge of RB&W's carburizing—a surface-hardening process which produces a deep and uniform case and enables men like RCA Victor's Ben Faragalli, using RB&W tapping screws, to do faster work.

It is one of many processes in which RB&W bolts, screws, nuts and rivets receive specialized treatment dictated by customers' individual requirements. Breadth of facilities is one of the reasons why RB&W tapping screws, cap screws, machine bolts, carriage bolts, machine screws, nuts, rivets and other fasteners are considered "first choice" by so many of America's leading manufacturers.

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32-tooth ratchet action—pawl always makes a double tooth contact for added strength.



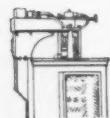
Easily removed Welch plugs permit cleaning and servicing of friction grip device.



Four-way socket grip makes it easier and faster to interchange various units. Hot broached chip-curved openings give you smooth strong socket walls.



Snap-on metallurgists select only high grade alloy steel to produce Snap-on wrenches.



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Snap-on scores again with a new "Master Supreme" set of four handles, three extensions, a universal joint, and fifteen popular sized sockets. In this $\frac{1}{2}$ " sq. drive set you will find highly engineered design, accurate balance, perfect fit, and a comfortable grip, that results in faster, safer, more satisfactory work. Every tool has a full chrome finish for long service life.

Check the features at the left, then ask the Snap-on man to show this set to you. Ask him to demonstrate — try the feel of the tools yourself. You'll agree that mechanics who use dependable tools like these will be a definite asset to your shop.

Over 4000 Snap-on tools are available through 41 direct factory branches located in key industrial areas.

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employees took advantage of the company's offer to remain in the family and continue in the production of Maxwell House coffee and Jello desserts:

1. To hold the same, or an equivalent, job in the new plant.
2. Transportation for the employee and his immediate family.
3. Transportation of all household effects to San Leandro.
4. An extra-living cost allowance for as long as two weeks after departure from Los Angeles.

If the employee decided to terminate rather than make the move, he was offered the following:

1. Termination allowance based on his age and length of service. (This allowance amounted to as much as 52 weeks' pay.)
2. A special closing bonus of 25% of the employee's last 8 weeks' pay if he stayed until his job ended.
3. Guidance in finding new employment.

Over 70 Trades in Apprenticeship Program

OVER 70 trades now have an apprenticeship program, jointly maintained by labor and management, in the San Francisco area, a survey by the San Francisco Labor-Management Apprenticeship Committee shows. These trades include such unusual occupations as neon tube benders, ornamental iron, automatic sprinkler and fire control and tag and label workers.

General chairman of the overall committee is William J. Varley, executive manager of the Electrical Contractors' Association. General vice chairman is J. L. Hogg, president of the AFL Building and Construction Trades Council.

Plant Departments Compete for Banner

A "DEPARTMENT of the Month" banner is flown over the department at the Inland Paper Box Company, Denver, which scores the highest in essential work practices. A score sheet with a possible 100% is broken down as follows:

Housekeeping	50%
Production Schedule	20%
Costs	20%
Safety	10%

Inland has four departments in the plant which control production and shipping of corrugated and solid fibre shipping containers, and these departments compete on a monthly basis for the banner. Scoring is done according to a simple formula by the vice-president and general manager in conjunction with the plant superintendent.

"These percentages could be varied to fit requirements of any plant" says F. C. Vertrees, vice-president of In-

land. "It may look lopsided to you to carry 50% as housekeeping, yet that was primarily the reason for setting up this efficiency rating, since we have other means of controlling costs, profits, etc.

"This arrangement has worked very well for the past year in our plant and has created the desired competitive spirit between departments."

Paint Convention

SPEAKERS at the 62nd annual convention of the National Paint, Varnish and Lacquer Association in San Francisco beginning November 15 include Leo M. Cherne, executive secretary of the Research Institute of America, Robert R. Gros of the Pacific Gas and Electric Company, Hon. Karl R. Bendetsen, Assistant Secretary of the Army and Willis S. MacLeod, Director of the Standards Division, Federal Supply Service, General Services Administration. A raw material symposium will be held on Friday afternoon, November 17 when manufacturers of containers, pigments, oils, resins and solvents will tell of the current supply situation and the outlook for the future.

Wood Preservation Figures

TOTAL VOLUME of wood given preservative and fire-retardant treatment during 1949 was about 99% of the 1948 volume, according to Fred W. Gottschalk, president of the American Wood-Preservers' Association and technical director of the American Lumber & Treating Co.

Volume in 1949 totalled 290,555,934 cubic feet; 1948 volume was 292,357,303 cubic feet. Record high was 362,009,047 cubic feet, treated during 1929. Washington is third highest state in the nation, in number of treating plants, with 16 of them operating.

Construction timbers, poles, and piles showed increases of 14.7%, 8.8%, and 2.9% respectively. All other products decreased.

Novel Traffic Counter

SPEED COPS don't have to hide behind bushes and billboards any more, since the UCLA research-minded personnel attacked the problem of highway speed. They have developed an electronic device that (1) totals all traffic, (2) by speed increments of 10 mph., (3) at a point remotely distant from the scene of the count.

Such a device was on display at the recent West Coast Electronic Manufacturers Association convention in Los Angeles. Traffic being counted was on a highway approximately one-half mile from the convention.

ANNOUNCING

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Hospital Surgical Medical Protection covering the west

or pin-pointed locally!



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- BLUE CROSS HAS A PLAN FOR YOUR EMPLOYEES**

You deal with ONE Blue Cross office...uniform payroll deductions, benefits and enrollment regulations for ALL your employees.

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Boise, Idaho
Boise 7080

3443 Wilshire Boulevard • Los Angeles 5, California • DUnkirk 2-7211

THE WEST ON ITS WAY

ALASKA

U. S. TO ALASKA RAILROAD discussions are under way. According to reports, the United States State Department and the Canadian government are talking over a proposal that a railroad be built through Canada to Alaska.

ARIZONA

CARNATION MILK PLANT SOLD—Carnation company's refrigeration plant at 2100 West McDowell Road is sold to Arizona Frozen Foods Corp. for about \$250,000. The new owners have expansion plans projected, including three 30 by 40 ft. refrigerated units, thereby adding 290,000 cubic feet of deep-freeze storage space. Estimated cost of this improvement is \$750,000. It will take place in early 1951, if materials are available.

COTTON MILLS SOLD—Producers Cotton Oil Co., Fresno, Calif., has purchased all outstanding stock of the Agricultural Products Co., Phoenix. James B. Mayer, assistant to Harry S. Baker, president of Producers Cotton Oil Co., is named manager of the Arizona corporation, with offices in Phoenix. The firm will continue to operate as an independent concern in Arizona.

NEW CITRUS PLANT AT TEMPE—Maricopa Citrus Co., headed by C. W. Thomas and Charles Franklin, is now operating in new quarters at 229 West Fifth St., with packing sheds at Fifth St. and the Southern Pacific R. R. tracks. They expect to employ 50 workers at peak season.

CALIFORNIA

EMERYVILLE SITE FOR MOORE BUSINESS FORMS—Moore Business Forms, Inc., begins construction on a 25,000 sq. ft. two-story building in Emeryville for expansion of their facilities. The project is scheduled for completion about January 1, 1951.

\$400,000 CONSTRUCTION FOR COLD STORAGE CO.—Cold Storage & Freezer Co., Santa Clara, starts construction of a new \$400,000 cold storage unit on Martin Avenue in Pasetta industrial tract, and will be able to accommodate 3700 tons of commodities. Equipment will include modern freezing unit for food processing.

BAY AREA COUNCIL MOVES—The Bay Area Council moves from 315 Montgomery Street to 130 Montgomery Street, San Francisco. Due to an increase in planning and research activities, the move to larger and more efficient quarters became necessary.

NEW ADDRESS FOR McCOLPHIN-CHRISTIE—After October 2, 1950, McColphin-Christie Corporation, Ltd. will be located at 3410 West 67th Street, Los Angeles 43. Telephone PLLeasant 3-2607.

\$300,000 MACHINERY EXPANSION FOR THOR—Thor announces a \$300,000

machinery expansion program in its Aurora, Illinois, and Los Angeles works, involving the installation of new, high speed equipment at vital points of production. At Los Angeles, new milling machines, radial drill presses and grinding machines are being added to the line producing pneumatic mining and contractor tools.

PRINTING CO. SIGNS LEASE—The Lehmann Printing and Lithographing Co., San Francisco, completes a 15-year lease on 105,000 square feet of industrial property at Folsom and Second Sts. The company specializes in the design and manufacture of labels. The plant, newly equipped with modern facilities, will allow for integrated production from design to shipping under one roof. The expansion will result in an increase in personnel which will bring the firm's San Francisco payroll to over three-quarters of a million dollars a year.

W. BERT KNIGHT CO. MOVES—W. Bert Knight Company, Los Angeles technical service representatives for manufacturing plants,



moves to its own recently erected building at 10373 W. Pico Blvd. The organization, just completing its 26th year in business, formerly was located on Venice Blvd. for the past 15 years.

CHANGES NAME—On November 1 The Paraffine Companies, Inc. name was changed to Pabco Products Inc. Head office remains at 475 Brannan Street, San Francisco 19.

AMERICAN ELECTRONEERING MOVES—American Electroneering Corp., 2112 South La Brea Avenue, Los Angeles, producers of aircraft instrument test equipment, power supply units, signal generators, etc., move to new and larger quarters at 5025-5029 West Jefferson Boulevard. Plant superintendent will be Joe Funderburg, formerly project engineer with Gille Brothers, West Coast electronics firm.

\$1,000,000 EXPANSION PROGRAM FOR GOODYEAR—The Goodyear Tire & Rubber Company plans to install equipment to produce Airfoam cushioning material. Installation work has already begun and production is expected to begin shortly after the first of next year. Output of the local plant will supply automotive seating and furniture manufacturers in the Western part of the country and will provide employment for approximately 100 persons.

SANTA CRUZ SITE FOR \$3,000,000 WRIGLEY PLANT—Plans to build a \$3,000,000 chewing gum plant in Santa Cruz have been formulated by the Wrigley company. Construction will start in the early summer of 1951. The plant is expected to

produce \$8,000,000 worth of chewing gum a year and will have an annual payroll of \$1,250,000 and 300 employees. This will be the first Wrigley plant West of the Mississippi and it is expected the new plant will greatly improve distribution throughout the West.

\$100,000 ADDITION FOR LENKURT ELECTRIC—Lenkurt Electric Co. of San Carlos begins building a \$100,000 addition to its electronic manufacturing plant. The new 16,000 square foot structure will be used for making carrier telephone and telegraph equipment for use with all types of wireline and radio communication systems. When in operation it will employ about 300 persons on a three-shift basis.

\$320,000 PLANT FOR MATTELL CREATIONS—Mattell Creations, Inc., makers of musical toys, begins construction on a \$320,000 factory in the Los Angeles industrial tract. The new 60,000 square foot structure, when completed, will enable the firm to double the volume of its business. If sufficient supply of raw materials is available, the concern may boost employment from the present 420 to 650.

STEEL CO. PLANS SANTA CLARA EXPANSION—Pittsburgh-Des Moines Steel Co. plans to expand its Santa Clara plant equal to the original facilities when the plant was built three years ago. The addition will result in 30 more employees and an increase of more than 25 per cent to the annual payroll of \$600,000.

NEW BUILDING DEDICATED—Fluor Corp., Ltd., 2500 S. Atlantic Blvd., Los Angeles, celebrates the 60th anniversary of its founding with open house ceremonies for its 2,000 employees and various business and industrial leaders in the area. Coinciding with these ceremonies is the dedication of a new \$400,000 engineering building.

NEW OWNER FOR CALIFRUIT PACKING—Delta Canning Corporation, Manteca, is new name of the former Califruit Packing Co. Plans call for 1951 packs of asparagus and tomatoes, with new equipment scheduled.

GAR-BRO MFG. CO. COMPLETES ADDITION—Gar-Bro Manufacturing Company, a division of Garlinghouse Brothers, completes a new building on recently acquired property adjoining their plant at 2416



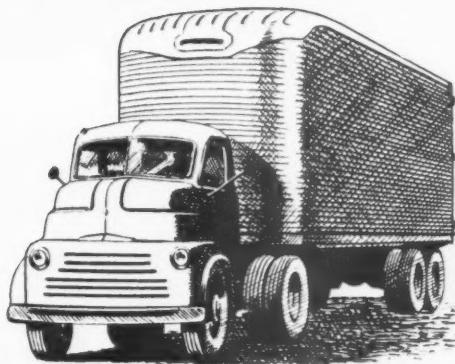
E. 16th Street, Los Angeles. 18,000 sq. feet of additional area have been added, which includes 9,600 sq. ft. enclosed by an all steel building and 8,400 sq. ft. for parking, making a total of 48,000 sq. ft. for the plant facilities. This new building is the first unit of their expansion program.

SUBCONTRACTS PLANNED BY LOCKHEED—Plans to subcontract major sections of Lockheed Aircraft's military combat

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TYDOL HD S-1. Higher detergency level than Tydol HD. For every type of engine subjected to frequent cold starts, and to severe and continued overloading. SAE grades 20, 30, 40. Sold in drums.

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planes to several established manufacturers in the Southwest have been made. Accelerated production schedules of jet fighters, trainers and patrol planes at Lockheed have recently been authorized by the military service. To meet the new demands, the company is pioneering the new, more efficient method of handling the increased production volume scheduled for the next two years.

BINKS MFG. CO. PURCHASES PLANT—Binks Manufacturing Co., Chicago, manufacturers of precision spray finishing equip-



ment, purchases new plant located at 4915 Pacific Boulevard, Los Angeles. It will be operated under the direction of J. E. Roche, manager of the West Coast division, covering the seven states of California, Oregon, Washington, Arizona, Utah, Nevada and Idaho.

\$2,500,000 ASBESTOS PRODUCTS FACTORY—Plans are underway for construction of an asbestos products factory in the Pasetta Industrial Tract, Santa Clara, by Keasbey & Matisen of Ambler, Pa. The company manufactures a complete line of asbestos products, including shingles, pipe and related items. Plans include the purchasing of a 26-acre site at the southeast corner of Lafayette Street and Kifer Road.

EXPANSION PLANNED BY CHALLENGE MFG. CO.—Challenge Manufacturing Co., manufacturers of transit mix concrete mixers, begins construction of a 32,000 square foot addition to its Los Angeles plant. Production will be increased about 50% and the employment of another 35 persons is anticipated when the added facilities are completed. This is the first of three additions the company is planning in an effort to increase its production capacity about 200%.

\$35,000,000 INVESTMENT FOR CBS—Columbia Broadcasting System plans to erect a television city on Gilmore Island at the corner of Fairfax Avenue and Beverly Boulevard, Los Angeles. Included in the project will be facilities for the production of films for television presentations. The project, including other facilities, ultimately will involve a \$35,000,000 investment.

S. F. FACTORY FOR PORTLAND CONCERN—White Stag Manufacturing Company, manufacturer of sportswear for men and women, plans to erect a \$250,000 factory in San Francisco's Apparel City. The factory represents White Stag's third primary manufacturing center and will employ approximately 200 workers when completed in January 1951.

PAPER PLANT FOR SANTA CLARA—Milwaukee Lace Paper Co., Milwaukee, Wis., plans to open a \$15,000 branch plant in Santa Clara. The company produces paper doilies, paper fruit cups and drinking cups, restaurant place mats and other specialties under the trade name of Milapaco.

PRODUCTION BOOST FOR MOBILHOMES—Mobilhome Corporation plans to boost production of homes at its San Diego plant from 20 to 52 a month by November 15 through plant expansion, and it will also include construction of a unit at Oceanside with a capacity of 50 homes a month. The

Oceanside plant is expected to go into production soon after December 1 with production at the rate of 50 homes a month until pending orders in that area are filled.

\$180,000 EXPANSION FOR INTERNATIONAL MINERALS—International Minerals and Chemical Corp., San Jose, plans an expansion program to cost more than \$180,000. Included in the program is another crude evaporator to cost \$90,000, and the plant's eighth raw materials storage tank costing \$40,000, and a new \$22,000 warehouse addition recently occupied.

EDISON CO. TO BUILD \$30 MILLION GENERATOR—Fontana is the site selected by the Southern California Edison Co. to build a \$30 million steam-electric generating plant on a 200-acre tract. Contract award for the design of the station is expected to be made by November 1 and the actual construction will begin shortly thereafter. Tentative orders have been placed for the first of two 100,000 kw. units and completion is scheduled for 1952.

WESTERN HEADQUARTERS FOR SANSON HOSIERY—Sanson Hosiery Mills, Inc., Philadelphia, opens Western headquarters in Hollywood. The company recently acquired Willys of Hollywood, a hosiery manufacturer, which will now operate as a division. The Willys property includes two mills, one of which has just been completed, in the Hollywood area.

3 GENERATING UNITS TO COST \$30 MILLION—Pacific Gas & Electric Co. orders three 134,000 hp. generating units costing \$30 million, two of which will be installed by the fall of 1952 at the company's new Moss Landing station. The third generator is scheduled for installation by 1953 in the utility's Contra Costa station near Antioch.

AMPEX ELECTRIC TO MOVE—Ampex Electric Corp., 1155 Howard Ave., San Carlos, manufacturers of tape recorders, are constructing a new building at Bay and Charter Sts., Redwood City. The new plant, with its 23,000 sq. ft. of floor space, is scheduled for completion in March, 1951.

ELECTRONIC INSTRUMENT CO. MOVES—Moisture Register Company, Alhambra, manufacturer of electronic instruments for testing moisture content, moves to



1510 West Chestnut Street, Alhambra. The move was necessitated because of increased production which required larger quarters. Addition of new instruments to the Moisture Register line also required additional manufacturing and assembly facilities, plus the expansion of the servicing department.

L. A. PLANT FOR PRECISION SPECIALTIES—Precision Specialties, Inc., manufacturers of plastic toys, plans construction of a \$400,000 plant in the Los Angeles International Airport industrial tract. The new 36,000 square foot structure will enable the firm to triple its present production capacity and to double employment.

SIGNAL TRUCKING LEASES WAREHOUSE—Signal Trucking Service leases the two-story warehouse building at Fruitland

Avenue and Loma Vista, Vernon, from Milliron's Department store, where it will operate a warehousing business. The lease is for an initial term of 7½ years, subject to option for renewal for a longer period.

\$300,000 JUICING PLANT AT CORONA—Ground has been broken and construction begins immediately on a new \$300,000 juicing plant at Corona by The Exchange Lemon Products Co. Construction of the new plant is the initial step in a program of consolidation and expansion of the firm's Corona facilities for the manufacture of juice products and will include rearrangement of the present facilities and the addition of the new building and equipment.

COLORADO

SUSPENDS OPERATIONS—The Durango Flour Mill, Durango, owned by Colorado Milling and Elevator Company for the past two years, suspends milling operations indefinitely, after having been in continuous operation since the 1880's.

\$165,000 EXPANSION FOR LUGGAGE FIRM—Schwayder Bros., Inc., national manufacturers of luggage and furniture, begins construction of a one-story addition to its plant at 1050 South Broadway, Denver, to cost \$165,000. The new building, adjoining the present one, will be 200 x 200 ft. Completion is scheduled for the first of 1951.

\$600,000 PLANT FOR BOULDER CITY—The U. S. Bureau of Mines plans to build a \$600,000 pilot plant at Boulder City for ore processing of large manganese deposits in Nevada and Arizona. Development processes include an ore preparation unit with facilities for storage; crushing and coarse grinding; an ore concentration unit and chemical treatment units.

IDAHO

PHOSPHATE LAND LEASED—The J. R. Simplot Company leases two lots comprising 1,756 acres of government phosphate land 60 miles east of Pocatello. Stripping operations will begin as soon as possible. At the same time, Potash Company of America leased an adjoining lot comprising 1,440 acres.

AEC CONTRACT NEGOTIATIONS UNDER WAY—The U. S. Atomic Energy Commission is conducting contract negotiations with American Cyanamid Company, New York City, for operation of the chemical processing plant being built at the reactor testing station in southeastern Idaho. Term of years or exact type of contract will not be known until negotiations are further advanced.

MONTANA

GAS PROPERTIES ACQUIRED BY MONTANA-DAKOTA UTILITIES—Montana-Dakota Utilities Co. of Minneapolis announces acquisition of the natural gas properties of Billings Gas Co. and Rocky Mountain Gas Co., neighboring utilities. The properties will be merged with Montana-Dakota, subject to approval of regulatory authorities. Gross revenues of the new gas properties exceeded \$1,800,000 for the 12 months ended July 30. Total customers served were 16,200.

NEW MEXICO

NEW MANGANESE PLANT FOR DEMING—The U. S. Ferro Metals Company of Pittsburgh, Pa., plans to build a new manganese processing plant at Deming, completion of which is expected in the next few months. The company plans also to reopen its mines in Lake Valley and Manganese Valley. The new plant will concentrate low-grade ore from these mines and will accept custom manganese ore mined in New Mexico and Arizona.

GAS FIELD ACQUIRED BY GREAT LAKES OIL—Great Lakes Oil & Chemical Co. of Grand Rapids, Mich., acquires 4,000 acres in the San Juan Basin of New Mexico in an area presently being developed by Delhi Oil Co., Western Natural Gas Co., Hancock Oil Co., Southern Union Gas Co. and other large gas operators. The acquisition will furnish Great Lakes with sizable gas reserves. Estimated output after shooting will be in excess of 15 million cubic feet per day. The company plans a preliminary program calling for drilling of 14 additional wells.

OREGON

\$150,000 PLANT FOR TEKTRONIX—Tektronix, Inc., producers of electronic test equipment, break ground for a new \$150,000 plant in Portland at Barnes Road and Sunset Highway. The single story concrete plant will have 22,000 sq. ft. of floor space.

MOTOR FREIGHT LINE EXPANSIONS—Pierce Freight Lines, Inc., Portland, plans to build a new \$275,000 terminal on NW Yeon between 23rd and 26th Avenues. West Coast Fast Freight, Inc., announces a million dollar development in the Guilds Lake area and has purchased the former City Incinerator property and will begin its program by remodeling the incinerator building into a modern office building. Additional dockage and storage structures will be erected. Inland Motor Freight Co. purchases 27,000 square feet of property adjacent to the present terminal for expansion purposes.

\$125,000 FIRE DAMAGE—Fire swept Tygh Valley Lumber Company causing \$125,000 damage to planer and sorting equipment. Little interruption in work is expected since the 130 employees were preparing to shift to the new building.

PENN. SALT PLANS ENLARGEMENT—Pennsylvania Salt Manufacturing Company plans "extensions and increases" at their \$6,000,000 Portland plant. No further details are available at present.

MOBILIFT ACQUIRES FLOOR SPACE—Mobilift Corporation adds another 8,000 sq. ft. of factory space at its No. 2 plant located at S.E. 25th Avenue and Raymond Street, Portland, and set up round-the-clock production schedules in several departments. This is the second 8,000 ft. of concrete construction in six months. Two new models of Mobilift Lev-R-Matic driver fork lift trucks are in production.

SAWMILLS SHIPPED TO YUGOSLAVIA—En route to Yugoslavia are two complete sawmills built by Monarch Forge & Machine Works of Portland, boxed in 28 huge packing crates and weighing 75 tons. These mills are the first of four shipments comprising eight complete saw mills being built by the

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for Traveling Hoists**

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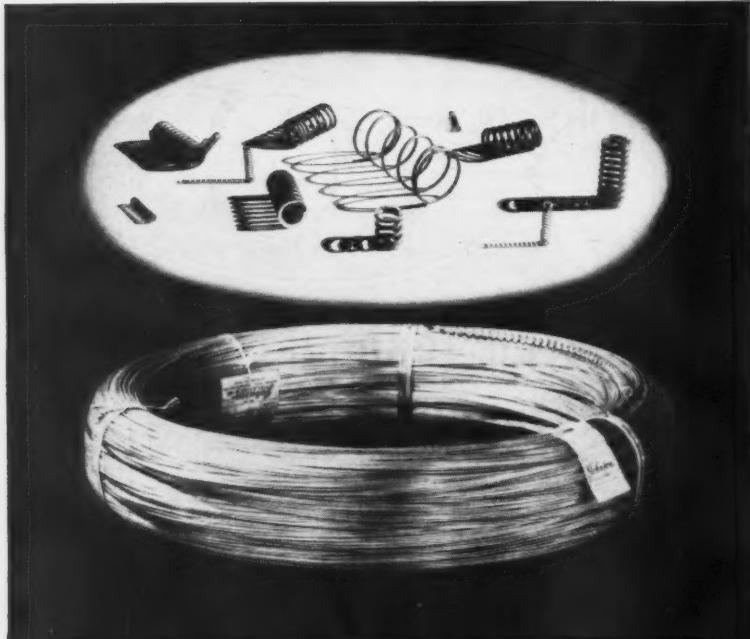
Equipped with 45 feet of cord, the Type "YS" Reelite, mounted at a mid-point supplies continuous power to a hoist traveling 90 feet. Finest steel clock-springs keep cable under proper tension at all times. Turning on a nearly frictionless swivel base, it pays out cord in either direction to follow curves in the track. Bearings are oilless. Rings and brushes are readily accessible should service ever become necessary.

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Good News—

Johnson XLO Music Spring Wire now goes to you made from Swedish electric steel rod. Another advance in Johnson highly specialized production.

Johnson researchers plus the resources of Swedish steelmakers have developed an electric furnace steel, with closely controlled analysis, which is being used exclusively in Johnson Music Spring Wire. The result—more uniformity and added fatigue.

Johnson XLO Music Spring Wire means—uniform cast, uniform tensile, uniform size and self-lubricating surface.—The reliability of your springs begins with the wire.

JOHNSON

STEEL AND WIRE COMPANY, INC.
WORCESTER 1, MASS.

New York Philadelphia Cleveland Detroit Akron Chicago
Atlanta Houston Tulsa Los Angeles Toronto

Portland firm to fill a \$500,000 order from Tehnopromet, the Yugoslav government buying agency.

BAG COMPANY DESTROYED BY FIRE—Peyton-McDowell Bag Company, 0333 S.W. Sheridan Street, Portland, suffered loss estimated at something over \$100,000. Inventory and machinery at the Fortified Farm Products Company, housed in the same building, was charred and water-ruined, with a loss running around \$57,000.

JUNCTION CITY TO GET NEW BAND MILL—A new 24-ft. mill with a 5-ft. band headrig is now in operation at Larsen, Clark & Powell Lumber Co. which is expected to have a capacity of 35,000 feet per 8-hour shift. 19 men will be employed by the firm in sawmill, planing mill and yard activities.

AMERICAN STEEL INCREASES WAREHOUSE SPACE—American Steel Warehouse Co., 425 N.E. 9th Ave., Portland, completes construction of additional warehouse space that increases total capacity by over 20 per cent, and brings the total warehouse space to 51,000 sq. ft. One five-ton crane has been added to serve the new space.

UTAH

\$3,000,000 FILTROL PLANT—at the Industrial Center, 1700 S. Redwood Rd., Salt Lake, scheduled for December 15 completion, will be a catalyst manufacturing operation. Main product will be synthetic clay-based agents used in catalytic cracking of oil. An estimated 150 persons will be employed during initial operation. This may be the first of a projected larger operation.

NEW S. L. INDUSTRIAL SITE—American Smelting & Refining Company's Murray smelter plant and property have been sold to the Murray American Mill Co. for an undisclosed price. Buildings and machinery will be disposed of in order to clear the plant site for possible industrial and manufacturing development, and home site construction. The property comprises over 100 acres, with a 1600 foot frontage on State Street.

NEW COKE OVENS—Geneva Steel Co. is constructing 23 new coke ovens to replace an equal number of worn out units at the Ironton plant. Completion is expected during next spring.

WASHINGTON

\$250,000 CANNING PLANT AT VANCOUVER—Washington Cooperative Canners Association plans construction of a \$250,000 string bean canning plant at Vancouver.

\$3,700,000 CONTRACT AWARD—Kaiser Engineers, Inc., receives contract for a \$3,700,000 building program at Kaiser Aluminum and Chemical Corporation's Mead reduction works. This is in addition to the \$2,000,000 expansion program for an addition of a seventh potline at Mead. Nine new buildings will be added, two of them more than two blocks long, all of which will be needed for operation of the seventh potline which Kaiser bought from the government earlier this year for \$2,000,000. 250 men are now employed on the new construction and are expected to remain employed until completion of the project is finished early next year.

LONGVIEW PULP MILL TO EXPAND

—Construction begins on a multi-million dollar expansion to the Weyerhaeuser Timber Co. kraft pulp mill at Longview which will nearly double the present production. The plant will utilize sawmill waste, low-quality logs and other wood products not now used in other operations of Weyerhaeuser. The new installation will add 175 tons to the plant's present production of 220 tons per day, which project is expected to be completed within 20 months.

\$250,000 PLANT ADDITION FOR CANNERS COOPERATIVE—Canners Cooperative, Vancouver, announces plans for a \$250,000 plant addition to handle Blue Lake Beans for 1951 pack, and a substantial change for the company that originally was formed to process prunes.

CARSTENS PACKING CO. PLANS EXPANSION—Carstens Packing Co., meat packing firm, plans to spend about \$400,000 early in 1951 on improvements to its Spokane plant. The program includes installation of a giant cooler and expansion of packing and shipping departments.

\$250,000 WAREHOUSE FIRE—The Pomeroy Warehouse and Milling Company was virtually destroyed when fire raged through the property. More than 200,000 bushels of wheat was a total loss, and damage was placed at \$250,000.

PAPER MACHINE AT EVERETT MILL—At a cost of several million dollars, Everett Pulp & Paper Co., Everett, is preparing to install a fourth paper machine, which will up by about 50% the mill's output to 50,000 tons a year, and increase employment by 150 to 200 persons. First production operation for the new unit is scheduled for early 1952.

NEW CHEMICAL PLANT—will be built at Kennewick by Allied Chemical & Dye Corp., New York, to manufacture chemicals for the Hanford plutonium works at Richland. Site will be three miles south of Kennewick near Hedges. About 20 to 25 persons will be employed.

WYOMING

GAS FOR MORE TOWNS—Fort Bridger, Mountainview, and Uri are in line to get natural gas from Mountain Fuel Supply Co. as soon as the firm's planned \$134,000 extension program is completed.

1800-MILE PIPELINE—At an estimated cost of \$60,000,000 the Platte Pipeline Co. will build an 1,800-mile crude oil pipeline from Wyoming to Illinois. Five oil companies are participating: British-American Oil Co., Ltd.; Continental Oil Co.; Ohio Oil Co.; Pure Oil Co., and Sinclair Refining Co. Cost will be financed by these firms and by a loan arranged for with Metropolitan Life Insurance Co. This line will have 140 miles of 16-inch pipe and 940 miles of 20-inch pipe. First shipment of pipe for the line is expected in February of next year, and completion is scheduled for fall of 1951.

NEW SULPHUR PLANTS—may come to Lander. Continental Sulphur and Phosphate Corp., with headquarters in Dallas, Texas, is a new firm organized to undertake development of mineral deposits in two sections of Wyoming. Processing plants costing \$5,750,000 may be built to handle ores, according to indications received here. A plant to produce 200 tons daily of concentrated phosphate, including a sulphuric acid plant, would cost about \$3,750,000. That plant, it is understood, would be located in Lander.



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CRANE & HOIST ENGINEERING CORPORATION, 6328 Maywood Avenue, Bell, Los Angeles, Calif.
STRYCO MFG. CO., 470 Natoma St., San Francisco 3, Calif. MR. PRESTON FALLER, 1921 Minor Ave., Seattle 1, Wash.

WESTERNERS AT WORK

Arizona

In charge of the newly acquired Phoenix unit of *Carnation Milk Co.* is HARRY D. JOHNSTON, formerly assistant production manager at the Los Angeles fresh milk plant. Filling other offices in the Phoenix plant are CULLY ROBERTS, production manager, and CHARLES GRAHAM, office manager.

California

Western Gear Works announces two new appointments at the Lynwood plant. JACK S. MORGAN, formerly with National Supply Co. of Torrance, becomes assistant to the



MORGAN

OLIVER

works manager. JOHN E. OLIVER, formerly with Turbodyne Corp., a Northrop Aircraft subsidiary, becomes administrative assistant to the general manager. His first assignment will be a study of the company's aircraft activities with view to the establishment of a separate aircraft division.

LEONARD N. GOODELL, formerly manager of the *Westinghouse* manufacturing and repair department plant in Chicago, appointed assistant to the Pacific Coast district manager of the department in San Francisco. Goodell has been with the company since 1926.

PHILIP L. WARD becomes chief engineer of the newly-formed development engineering division at *Solar Aircraft Company*'s San Diego headquarters.

FRED T. MILLER becomes vice president of engineering and sales for Adel Division of *General Metals Corp.*; RICHARD A. STUMM is named vice president of manufacturing.

PERCY A. HAYTHORNE resigns as engineer in charge of metallurgical research at *Lockheed Aircraft Corp.*, to devote his time to consulting practice.

At a dinner in Oakland, leaders of the Northern California foundry industry honor WALTON WOODY, national president of the *American Foundrymen's Society*. From left to right at the head table are: IVAN

JOHNSON, president of *Pacific Steel Casting Co.*, Berkeley; JOHN RUSSO, president of *Russo Foundry Equipment Co.*, Oakland, and president of the Northern California chapter of A. F. S.; WALTON WOODY; PHILIP C. RODGER, vice president and general manager of *General Metals Corp.*, Oakland; ED WELCH, works manager of *American Brake Shoe Co.*, American Manganese Steel Division, Oakland; GORDON MARTIN, assistant manager of *Atlas Foundry & Manufacturing Co.*, Richmond.



HERBERT A. WILEY, Jr., appointed factory manager of the Pittsburgh factory of *Pioneer Rubber Mills*. Wiley has been with Goodyear Tire & Rubber Co. for the past 13 years.



At the October 6 meeting of the Southern California chapter, *American Foundrymen's Society*, in Los Angeles, were, standing left to right above: chapter vice president, HENRY W. HOWELL, *Howell Foundry Co.*; MICHAEL BOOK II, *Exomet Inc.*, speaker of the evening; and chapter president, JOHN E. WILSON, *Climax Molybdenum Co.*

Idaho

ROBERT D. O'BRIEN appointed manager of *Highland-Surprise Consolidated Mining Co.* of Wallace, Idaho, succeeding Frank H. Mitchell, resigned. O'Brien was formerly mine superintendent for Lucky Friday Silver-Lead Mines Co.

Nevada

Kennecott Copper Corp. announces the retirement of WALTER F. LARSH as general manager of Nevada mines division. JOHN C. KINNEAR, Jr., formerly assistant general manager succeeds Larsh as general manager, and PAUL HETT of Ruth advances to the post of assistant general manager.



KINNEAR

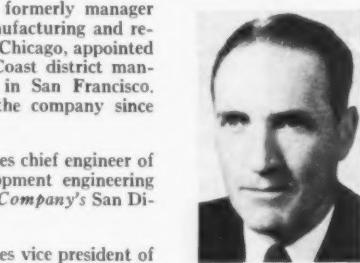
Oregon

KENNETH H. FINNEY becomes vice president and general manager of *Pope & Talbot Lines*, in Portland, succeeding GERALD A. DUNDON, resigned. Finney was formerly director, vice president and California manager of States Steamship Co.

Utah

ROBERT D. BRADFORD, general manager of *American Smelting and Refining Co.*, appointed general manager of the company's Western department. With headquarters in Salt Lake City, Bradford will direct all plants west of Omaha. He will continue to serve as president of the Garfield Chemical and Manufacturing Co. at Garfield. LOUIS V. OLSON becomes director of the company's department of agricultural research, succeeding DR. GEORGE R. HILL, who has retired, but is being retained as consultant to the firm.

D. F. WENGERT, formerly superintendent of the California division of *Union Pacific Railroad*, becomes general superintendent of the railroad's South Central district with



J. R. MUNRO, a native of San Leandro, named to the newly-created position of director of manufacturing of *Caterpillar Tractor Co.* He has been with the firm, which has plants in San Leandro and Peoria, Illinois, since 1918.



offices in Salt Lake City. Succeeding Wengert is V. W. SMITH, who has been on temporary assignment with the Railway Labor Board.

Washington

JACK OUELLETTE replaces HERB DOBB as personnel manager of *Western Gear Works*, Seattle. Dobb has been appointed assistant area manager.

JOHN H. BAKER promoted to general superintendent of *Pennsalt* of Washington's Western manufacturing operations.

EARL GILMARTIN, formerly executive vice president and general manager of *Commercial Creamery* in Spokane, becomes president, succeeding Roy A. Goodhue, deceased.

Wyoming

R. E. HOWE, assistant superintendent at the Sinclair refinery of *Sinclair Oil Co.* for the last five years, steps up to general superintendent, succeeding M. H. NOLAN, who has been transferred to Wood River, Ill. Succeeding Howe is E. H. HAUSNER.

LEE R. JAMISON, engineer for *Ohio Oil Co.* at McFadden, moves to the South Coles Levee unit at Bakersfield, Calif., as process engineer.

ASSOCIATIONS ELECT

Label Manufacturers National Association: President, Ed Levesconte, Crocker Union, San Francisco.

American Institute of Electrical Engineers, Richland, Wash., section: Chairman, F. J. Mollerus; vice chairman, R. B. Crow; secretary-treasurer, G. M. Clifton.

California Fish Canners Association: Secretary-treasurer, C. Frank Reynolds, head of foreign trade department, San Diego Chamber of Commerce.

Albuquerque Manufacturers Association: President, Dan Ormsby; vice president, G. R. Hatch; secretary-treasurer, George P. Ball.

Pacific Coast Electrical Association: Regional manager, E. F. Perkins, formerly with Pacific Gas & Electric Co., Wesix Electrical Heater Co. and Russell Co., of San Francisco.

American Trucking Association: President, Leland James, Consolidated Freightways, Portland.

Los Angeles Paint, Varnish & Lacquer Association: President, Raymond A. Carey, Western Zone Sales; vice president, John W. Vaughan, Sillers Paint & Varnish Co., secretary-treasurer, T. J. Phipps, Arco Company of California, Ltd.

Western States Council: President, Arthur Farmer, Portland Chamber of Commerce; 1st vice president, Douglas Campbell, Long Beach Chamber of Commerce; 2nd vice president, Willard Thompson, Butte Chamber of Commerce; secretary, Fred Brenne, Eugene Chamber of Commerce.

Forest Products Research Society, Pacific Southwest Region, organized October 11 at Los Angeles. Officers elected: Chairman, Axel V. Pederson, consultant; vice chairman, Arthur Koehler, consultant; secretary-treasurer, Edward S. Feldman, manager Furniture Manufacturers Association of Southern California.

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Western TRADE WINDS

News about those who distribute and sell industrial equipment and materials

Shepard Niles Crane & Hoist Corp. of Montour Falls, N. Y., appoints *Crane & Hoist Engineering Corp.*, 6238 Maywood Ave., Bell, Los Angeles, as sole representative for sales and service of all Shepard Niles products in the Southern California area.



DOSTAL

CHARLES A. DOSTAL, retired vice-president of *Westinghouse Electric Corp.* in San Francisco, opens his own office as a consultant for management guidance in sales, distribution and merchandising, with headquarters in Suite 811, Stock Exchange Building, San Francisco, California.

Personnel changes at *Columbia Steel Company*, a U. S. Steel subsidiary, include: MARION H. FREEDMAN appointed division vice-president of the Pacific Northwest sales division; MARSHALL B. HARRISON named manager of sales for the Oregon area of the division, with offices in Portland; and ARTHUR C. MOORE appointed division vice-president of the Intermountain sales division with offices in the Walker Bank Building, Salt Lake City, Utah.

General Electric Supply Corp. is occupying its new quarters at 53rd and Hollis Streets in Emeryville, Calif. The new building, with 75,000 sq. ft. of floor space, houses the office and warehouse, and is approximately five times larger than the previous headquarters at 9th and Jackson Streets. About 100 persons are now employed by the company.



DALEY

EDWARD DALEY, formerly San Francisco district manager for the Marion Power and Shovel Co., appointed assistant regional manager for *Cummins Engine Co.*, with headquarters at 1100 Title Guarantee Bldg., 411 W. 5th St., Los Angeles. The Cummins factory is in Columbus, Ind.

L. A. MCLEAN and R. T. CAREY join forces to organize the *Western Zone Sales Co.*, 3031 W. 7th St., Los Angeles 5, for the purpose of securing Western distribution for paint manufacturers interested in this territory. They plan an extensive service which will culminate in offices and warehouses in the principal Pacific Coast cities.

Boyd Engineering Co., Inc., appointed Southwest sales representative for the *Reliance Electric and Engineering Co.*, Cleveland, Ohio, motor and drive manufacturing firm. J. C. BOYD, vice president, is located

in the Albuquerque office, which is managed by O. B. STOWE. VERN CARNS is in charge of the Phoenix office.

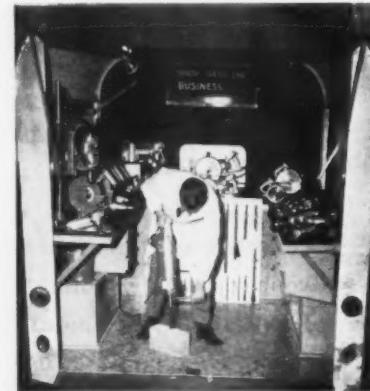
H. T. HUTCHINSON appointed assistant general sales manager of *Richfield Oil Corp.* in Los Angeles. Replacing him as sales manager of the central division in San Francisco, is JAMES T. FOSTER.

Two new division leaders are named by *Westinghouse Electric Corp.* JOHN J. NIELSEN, an application engineer with the company for the past 21 years, moves from Los Angeles to Salt Lake City as agency and specialties division representative. MORRIS P. BUSWELL, with the company for 17 years as an application engineer, becomes man-

A Catalog on Wheels

A salesman's catalog is a poor substitute for the real thing. It may be a good facsimile, but it's far from being as effective. So reasoned Black & Decker Mfg. Co.'s San Francisco branch when they designed and had built a demonstration trailer that would put the real thing at the disposal of distributor-salesmen and B & D sales engineers.

Users of electric tools also benefit by this unit since they can see an actual demonstration of tools best suited to their applications. The trailer carries a large assort-



ment of tools, including drills, sanders, grinders of all types, screwdrivers, nut runners, tappers, hammers, saws, shears, buffers, automotive grinding equipment, accessories and various attachments.

Both sides and the back end of this 7' x 9' aluminum trailer open out, and entrance is from the back as shown in the picture. A coupe model car with trailer hitch mounted directly over the rear axle draws the trailer.

Services of a Black & Decker Mfg. Co. sales engineer with this unit can be secured by writing to that company at 1090 Bryant St., San Francisco. Use of the trailer is limited to the San Francisco territory, consisting of northern California north of Bakersfield, Curry, Josephine, Jackson, and Klamath counties in Oregon.

ager of the agency and specialties division for the Los Angeles area. Prior to this transfer he served the company at Phoenix, Seattle and Salt Lake City.

A. O. LEECH appointed gas sales manager of *Portland Gas & Coke Co.* G. E. HEALY succeeds Leech as manager of commercial and industrial sales.

K. M. INGOLD, formerly assistant manager of the Detroit division of *West Disinfecting Co.*, appointed Northwest division manager with headquarters in Seattle, succeeding HENRY AHNEMILLER. He will supervise sales and service in Washington, Idaho, Montana and Alaska.



INGOLD

M. E. Canfield Co., 420 E. 3rd St., Los Angeles 13, MADison 6-6606, is the recently appointed exclusive distributor for *Arrow Products* of Grand Rapids, Mich., manufacturers of a complete line of power belt conveyors and gravity conveyors of the solid roller and wheel type. Canfield's territory will be the states of California, Arizona, Nevada, Oregon and Washington. Stocking distributors are being established in various localities throughout this territory; *Buehrer Co.* of San Francisco is now serving in this capacity for Northern California.

Sylvania Electric Products, Inc., announces three changes in its sales staff. DON R. SMOCK moves from Twin Falls to Coeur d'Alene, Ida., where he will cover Idaho, Montana, and eastern Washington. ROBERT STEUBER, formerly with the General Electric Supply Co., joins the Seattle sales staff. He is a specialist in lamp sales and will cover western Washington and Oregon. JERRY MULLER, formerly with Chown Electric Supply Co. of Portland, joins Sylvania to cover Oregon for the full line of lighting products.

JACK L. DAVID of *Oregon Handling Equipment Co.*, Portland, recently attended the sales course offered by *Rapids-Standard Co., Inc.*, at the home offices in Grand Rapids, Mich.

AL BAUER, formerly with *Consolidated Builders, Inc.*, named vice president and director of *Woodbury and Co.* and *Woodbury Hardware Co.* Bauer will direct wholesale merchandising and distribution of tools, equipment and supplies used in the industrial and hardware fields. During the war Bauer was manager of the Oregon Shipyard.



BAUER

Lesco, 2166 Market Street, San Francisco, is a newly appointed sales representative for *Products Research Co.*, 5426 San Fernando Rd., Glendale, Calif. As Northern California representative, Lesco will carry the PRC line of sealants and coatings for the aircraft industry.

LEONARD D. WOODS named assistant sales manager of *Round California Chain Co.*, Los Angeles. He has been associated with the company's sales staff for the past four years.

Trans World Airlines names ARTHUR L. STEWART general sales manager of the Pacific-Orient region to head a newly-created TWA sales region encompassing the entire Pacific Ocean area, with headquarters in Los Angeles.

Continental Oil Co. announces two promotions. L. D. HOPPES, formerly sales engineering representative at CONOCO general offices, Ponca City, Okla., becomes sales engineering representative for the Salt Lake City division. GILBERT K. LUDWIG, former sales engineering representative at Salt Lake appointed assistant director of the sales engineering division at Ponca City.

National Lead Company names E. L. BEENFELDT southern division manager of the Pacific Coast branch, succeeding K. C. SPECHT who transfers to New York as assistant to manager of sales, paints, pigments and oils; and J. W. BOWEN, trade sales supervisor for Southern California since 1948 named southern division sales manager.

The Paraffine Companies, Inc., names JOHN A. LUDWIG sales manager of its Paint Division.

PAUL R. PARISEAU named Los Angeles general sales manager of *Wyandotte Chemicals Corp.*

Electric Steel Foundry Co. announces promotion of Seattle branch manager, J. E. MCQUAID, to sales manager of the Contractor's Equipment Division at the Portland home office. McQuaid, who will assume his new duties in December, will be replaced in Seattle by WILSON V. LATIMER, former assistant manager of that office.

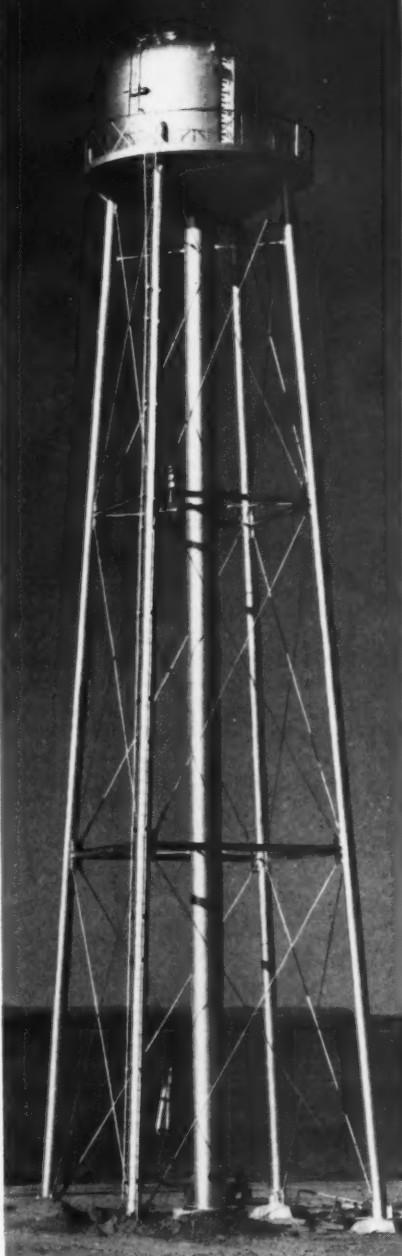
The C. H. Jones Equipment Co., handling construction and industrial machinery in the Salt Lake area, completes new quarters at 1505 S. 2nd West, Salt Lake City.

A. C. STALEY, JR., assistant general manager of sales for the *American Can Co.*, appointed manager of sales for the company's Pacific division. With headquarters in San Francisco, he will supervise activities of the West Coast, Hawaii, and Alaska. He succeeds DR. R. H. LUECK, who moves to New York as general manager of research.

General Electric announces the following appointments: L. M. LARKIN becomes regional sales manager of the Air Conditioning Department for eight Western states. C. R. BENSON, former assistant manager of the Distribution Transformer Sales Division, appointed manager of sales of the Oakland Transformer Plant. He has been with the company since 1926. GEORGE L. RICHARDSON, JR., advanced to position of district service supervisor for the appliance & merchandise department's Pacific district, San Francisco, succeeding J. R. DAVIS, who has moved to the Bridgeport, Conn., headquarters. Succeeding Richardson is PHILIP KLEIN. Appointed district sales manager for radio broadcast equipment in the Electronics Department, is CHARLES T. HAIST, JR.

RALPH A. MUMERT, formerly with Keenan Pipe & Supply Co., recently appointed sales engineer with *F. J. Hearty & Co.*, Los Angeles and San Francisco. He will be located in the Los Angeles office of this firm, which is the West Coast representative for *Edward Values Inc.* of East Chicago, Ind.

ELEVATED STORAGE



YOUR ASSURANCE OF DEPENDABLE FIRE PROTECTION

When the Pacific Gas and Electric Company installed a Horton elevated water tank at their new Contra Costa steam plant, they assured themselves of dependable fire protection. It was important to do so because this plant will play a leading role for P. G. and E. in the San Francisco Bay area. When it begins operation in 1951, it will help provide firming capacity for P. G. and E. hydroelectric plants, for plants of the federally-built Central Valley Project, and for various irrigation districts.

This Horton welded steel tank holds 25,000 gal. of water and is 97 ft. 6 in. to bottom. Should a fire break out, water will flow from the tank by gravity pressure to supply the fire protection system. This includes 66 automatic sprinkler heads that protect an area of 4500 sq. ft. and 30 hydrant and hose outlets. Large pumps will then be used to increase the flow by utilizing the mains of the nearby city of Antioch.

Elevated storage means dependable fire protection because the natural force of gravity does the work. Water is ready any time, night or day, to flow through the sprinkler heads, and hydrant and hose outlets.

The P. G. and E. tank is an ellipsoidal bottom structure; the type most commonly used in industrial installations for both fire protection and general service. Such tanks are available in standard capacities of 15,000 to 500,000 gals. Write for information or quotations.

CHICAGO BRIDGE & IRON COMPANY

Atlanta 3.....	2144 Healey Building
Birmingham 1.....	1560 North 50th Street
Boston 10.....	1065-201 Devonshire Street
Chicago 4.....	2132 McCormick Building
Cleveland 15.....	2256 Guildhall Building
Detroit 26.....	1567 Lafayette Building
Houston 2.....	2164 National Standard Building
Los Angeles 14.....	1570 General Petroleum Building
New York 6.....	3334-165 Broadway Building
Philadelphia 3.....	1666-1700 Walnut Street Building
Salt Lake City 4.....	568 West 17th South Street
San Francisco 4.....	1578-200 Bush Street
Seattle 1.....	1369 Henry Building
Tulsa 3.....	1667 Hunt Building

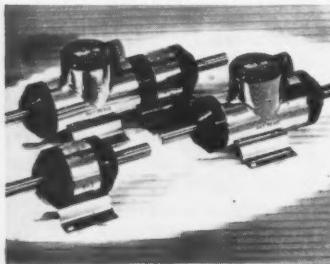
Plants in: BIRMINGHAM, CHICAGO, SALT LAKE CITY, and GREENVILLE, PA.

NEW MATERIALS & EQUIPMENT

E-11501

Combination Units for Variable Speeds

Features claimed: Integral combinations are now available in company's line of standard miniature variable and fixed ratio drives. Combination units are small, completely sealed, packaged items which retain the features of their individual components. For very low power applications requiring both speed reduction and variable speed, these combination units deliver 2-lb. in. of torque. Applications include timers, recorders,



controllers, computers, indicating mechanisms and similar devices. By combining the variable ratio unit with the proper fixed ratio, a variable output speed is obtained at any desired nominal speed, and is infinitely adjustable from 1/6 to 6. Design features include ball bearing shafts, permanent lubrication, and sealed construction.

Manufacturer: Metron Instrument Co., Denver, Colo.

E-11502

New-type Collector Separates High Carbon Dust for Re-firing

Features claimed: A tubular dust collector that permits the re-firing into boiler furnaces of high carbon particles without causing recirculation of all fly ash through the boiler, dust collector and induced draft fan. Separation of high carbon particles from the fly-ash of low carbon content is accomplished within a single unit and with one pass of the gases. Two hoppers are provided: the larger particles, suitable for re-firing are decanted into one system for reuse; the low carbon particles are deposited in a separate system for disposal. This method, known as P-D Decantation, in no way increases the normal resistance through the dust collector unit. Continuous removal of fly ash avoids erosion and damage to metal surfaces that result when the total dust is re-

injected without such separation. Thermix Corp., Greenwich, Conn., are sales and project engineers for the manufacturer.

Manufacturer: Prat-Daniel Corp.

E-11503

Display Sticker Needs No Adhesive to Stay On

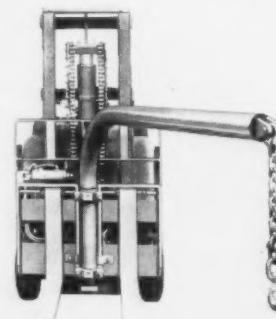
Features claimed: Plas-Stik sticks to glass or other smooth surfaces readily and can be removed without effort, leaving no mark or stain. After removal it can be used again. It can be cast in thicknesses ranging from 3 to 10 mils, or heavier if desired, and cut in a variety of shapes. Plas-Stik can be kept clean with a damp cloth. It takes up little counter or storage space.

Manufacturer: B. F. Goodrich Co., Los Angeles, Calif.

E-11504

Slewing Crane Arm Pivots for Easy Loading

Features claimed: Permits rapid, easy positioning in freight cars of loads up to 800 lb. at 80 in. load center. Crane arm is pivoted so that a two-way hydraulic cylinder can swing it laterally 20 deg. to either side of



center. Slewing crane arm is readily detachable so that the truck can be used with standard pallet forks.

Manufacturer: Towmotor Corp., Cleveland, Ohio.

E-11505

Steel Strapping Permits Single-Unit Power Packaging

Features claimed: The Power Package uses standard corrugated containers, mounted on corrugated pallets, and strapped into a strong, pilfer-proof package with bands of steel strapping. Completely strapped unit is easily and safely handled by fork lift truck.

FOR YOUR CONVENIENCE . . .

Use postage-paid card to obtain further information on products mentioned on these pages and literature listed on following pages . . .

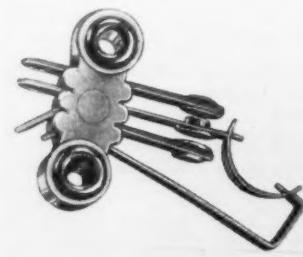
Method reduces need for many small containers, reduces time needed for packing process. Method gives excellent results in packing, handling and shipping small parts, sub-assemblies and fragile products.

Manufacturer: Signode Steel Strapping Co., Chicago, Ill.

E-11506

Midget Snap Action Switch

Features claimed: Model M-OM, one of the smallest switches in the snap action class, has special use in condensed timing and sequence opera-



tions and does a big job in a small amount of space. It is an open blade switch utilizing the rolling spring principle. Contact arms and blades are held between molded FM-10001 Nylon or Melamine side members secured by eyelets capable of taking a No. 1 mounting screw. Current carrying capacity is 3 amps at 125 volts, AC. Rated capacity life is 500,000 actuations.

Manufacturer: Acro Switch Division, Acro Manufacturing Co., Columbus, Ohio.

E-11507

No More Pain—Easy Release from Adhesive Tape

Features claimed: Quite, a painless adhesive tape remover, releases surface tension between skin and tape. No black gummy residue is left on the skin. Underside of tape is as slick as wet silk when removed, and the patient gets relief from pain of having tape ripped off tender skin areas. There are two ways to apply: (1) Spray over the tape and allow a few seconds to soak through; the tape will simply peel off. Or (2) lift the edge of a compound adhesive plaster and apply; apply more as the tape peels off. Quite is effective on single-layer or multi-layer tapings. It is packaged in modern plastic squeeze bottles, with a

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Information Bureau, WESTERN INDUSTRY

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Also further information on the following products advertised in this issue:

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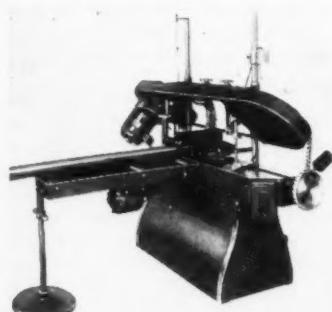
spout for drop-by-drop or flow application.

Manufacturer: Patron Chemical Corp., Los Angeles, Calif.

E-11508

Take Load Off Operator with This Metal Cutting Band Saw

Features claimed: The 14-in. Model D, due to its hydraulic principles can save much manual fatigue. Can be set



to raise itself automatically at completion of a cut and start down again without stopping blade. Thus, if operator loosens the vise and feeds stock in against the stock stop, by retightening the vise the machine will do the rest. When equipped with automatic vise tightener the operator merely

feeds the stock. Machine can do many milling and planing operations such as slotting, removing corners of die blocks.

Manufacturer: W. F. Wells & Sons, Three Rivers, Mich.

E-11509

Two New Air Impactools for Nut Running

Features claimed: Both of these air operated Impactools are of the pistol grip type. Large, easy-to-grip reverse caps are deeply grooved so that the tools may quickly be reversed even with greasy hands. Scientific muffling gives relatively quiet operation. Of the two new tools Size 504 is for nut running up to $\frac{3}{8}$ -in. bolt size, and the Size 510 is for nut running up to $\frac{3}{4}$ -in. bolt size.

Manufacturer: Ingersoll-Rand Co., New York City.

E-115010

Bolt Out of Reach? Use This Tool

Features claimed: Impakdriver is a hand tool for tightening or loosening stubborn or hard-to-get-at screws, bolts, or nuts. Simply twist in the desired direction and rap slightly with a hammer, and rusted or frozen fasteners are turned quickly and easily.

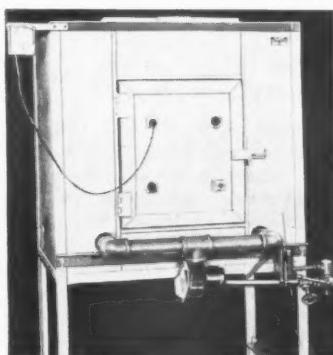
Tool is constructed on a very ingenious and efficient cam principle that translates the impact from a hammer's blow into a high torque.

Manufacturer: H. K. Porter, Inc., Somerville, Mass.

E-115011

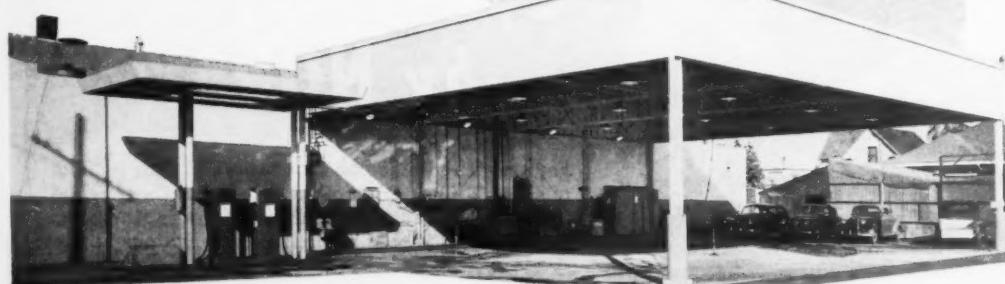
Precision Furnace for Heat-Treating of Metals

Features claimed: These furnaces are equipped with porcelain protected thermocouples and direct-reading pyrometers with calibrated energy input



and atmosphere proportioning. They are available in capacities ranging from 1.8 cu. ft. to 20 cu. ft., and have a range of from 0 deg. to 2,500 deg. F.

STEEL CANOPIES



Canopy Built for Knudsen Creamery Company By Calcor

Steel Structures designed and built to fit your special requirements: Industrial; Shop; Maintenance; Warehouses; Pump and Compressor Houses as well as Loading Docks; Canopies; and Garages.

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CALIFORNIA CORNICE, STEEL & SUPPLY

C O R P O R A T I O N

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A patented forced draft type of burner which will operate successfully on natural, manufactured or liquid petroleum gases effects economy of operation. Safety is insured by means of a solenoid valve which cuts off the fuel in the event that an electrical failure stops the blower, then automatically relights and resets the fuel input when the power returns. Insulation prevents outside temperature of furnace from rising above 150 deg. F. at the height of operation.

Manufacturer: A. D. Alpine, Inc., Culver City, Calif.

E-115012

Interior Paint Protects Against Flame Spread

Features claimed: Duo-Tex is an intumescing oil base paint that expands instantly into a thick char blanket when exposed to fire. This blanket does not flame. As it swells, it forms a deep layer of insulation between the underlying material and the heat of the flame. The char blanket clings to the surface, smothering flame from the underlying material before it can spread. Surfaces painted with Duo-Tex will pass fire tests, giving it a slow-burning classification under Federal Specification SS-A-118a and will meet the new requirement in

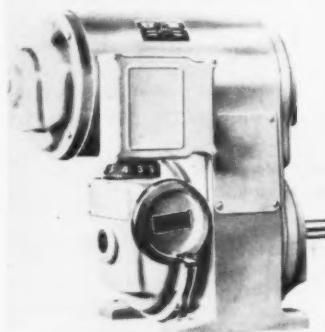
Article 55 of Title 19 of the California State Fire Marshal's Code. Western Asbestos Co., San Francisco is the Northern California distributor.

Manufacturer: Celotex Corp., Chicago, Ill.

E-115013

Single Phase Capacitor Type Design for Electric Power Drives

Features claimed: New single phase Speed-Trol motors are available in ratings of from $\frac{1}{2}$ hp. to 3 hp. inclu-



sive, and provide infinite speed variation in practically any given range that might be desired. They have either 2:1, 3:1 or 4:1 speed variations, and have 18 different maximum speeds

from 2,000 rpm. down to 52 rpm. inclusive. Due to positive adjustment any selected speed is steady and will not vary under fluctuating load conditions. Maintenance expense of a single phase motor is reduced by a starting relay that eliminates necessity of centrifugal switches or any rotating devices such as throw-out switches, commutators, or brushes.

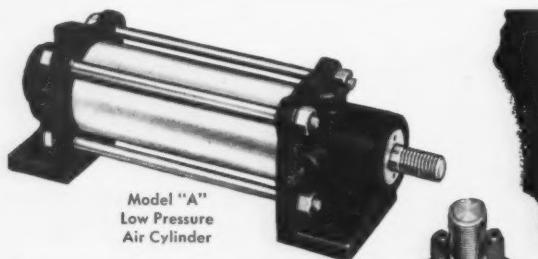
Manufacturer: Sterling Electric Motors, Inc., Los Angeles, Calif.

E-115014

These Stainless Steel Markings Resist Anything

Features claimed: Ateen-Ate process produces easy-to-read markings on stainless steel that are part of the steel surface and will not chip, peel, or crack under influence of heat, weather, moisture, and abrasion. Markings can be put on dials, signs, name plates and instruments. As process will handle up to 132-screen halftones, even photographs can be reproduced on stainless steel. Other uses are for highway signs, bridge markers, tablet markers and memorials where permanence is necessary. Designs can be applied to flat or irregular surfaces and to either large or small areas.

Manufacturer: Stainless Ornamentals, Inc., Boston, Mass.



For further information and data on NOPAK Cylinders and Valves, refer to Sweet's File for Product Designers, or write for Bulletin SW-1.

Series 15
High Pressure
Hydraulic



Standard
Heavy Duty

Dependable Cylinder Power by NOPAK

For simplified machine movements . . . for pulling, pushing, lifting, clamping . . . with power range from Low Pressure Air to High Pressure Hydraulic . . . there's a NOPAK Cylinder to meet your needs.

NOPAK Cylinders are available in 4 different classes of construction . . . to meet varied service requirements and to accommodate line pressures from 50 to 2000 P.S.I. . . . in 6 Standard Mountings . . . with or without Adjustable or Self-Regulating Cushions . . . and a choice of Piston Assembly Types.

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Representatives in Principal Cities

NOPAK
VALVES AND CYLINDERS
DESIGNED for AIR and HYDRAULIC SERVICE

A-5841-1/2H-A

WESTERN INDUSTRY—November, 1950

E-115015

Large Diameter Cylinders for Air, Oil, or Water Service

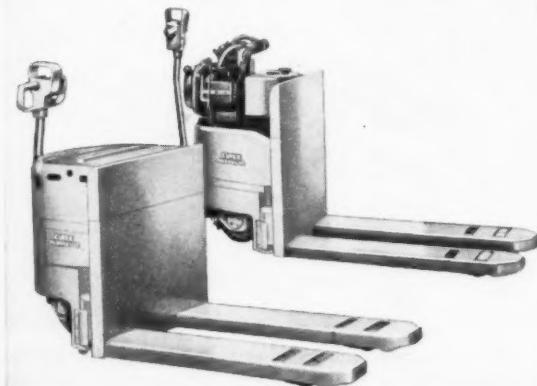
Features claimed: New 14-in. and 16-in. low pressure cylinders for 125 psi., air, or 160 psi., hydraulic, are available with cup-type pistons and chevron-type gland packings, making them suitable for air, oil, or water use. Compact, rugged end caps are furnished to the same mounting dimensions, either cushioned or non-cushioned. Two large pipe ports are drilled in each cap—1 in. in the 14-in. bore size, 1½ in. in the 16-in. size. Double-end rods available in most mounting styles.

Manufacturer: Hannifin Corp., Chicago.

E-115016

Narrow Quarters Don't Faze These Hand Trucks

Features claimed: These models have the shortest turning radius and shortest wheelbase of any truck of this type. They have plenty of reserve power for taking the heaviest



loads up steep warehouse ramps. The battery-powered Electro-Lift is driven by a motor which develops 1½ hp., more power than any other electric powered hand truck. The Hydro-Lift, with gasoline engine driving a hydraulic pump and motor, is infinitely smoother than any other type.

Manufacturer: Clark Equipment Co., Battle Creek, Mich.

E-115017

Roof Rejuvenator

Features claimed: Use this protective coating to (1) repair old roofs built up with pebbles, (2) to seal cracks on new roofs before the final coating, (3) to seal rough walls, or (4) to spray on a felt or pitch roof. Using standard pres-

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BEARINGS

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FOR GREATER MATERIALS HANDLING
Efficiency!

All industry knows Yale Lift Trucks as rugged workers that cut costs, speed production, handle all kinds of materials in volume—faster, safer, more efficiently.

Important contributors to their efficiency are the rugged ball thrust bearings in the trailing axle and wheel assembly—bearings specially designed to



meet the high load capacity, precision smoothness and long, trouble-free performance required in this tough application—bearings which Aetna has proudly supplied for over 15 years.

Improved performance, longer life and minimized maintenance are advantages which come to any hard working equipment when Aetna bearings lend a hand. Our engineers are ready and willing to work with you at any time.

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Standard and Special Ball Thrust Bearings • Angular Contact Ball Bearings • Special Roller Bearings • Ball Retainers • Hardened and Ground Washers • Sleeves • Bushings

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NOW...

a Field Service Manometer by MERIAM

Filling a long-felt need, this unit offers many advantages.

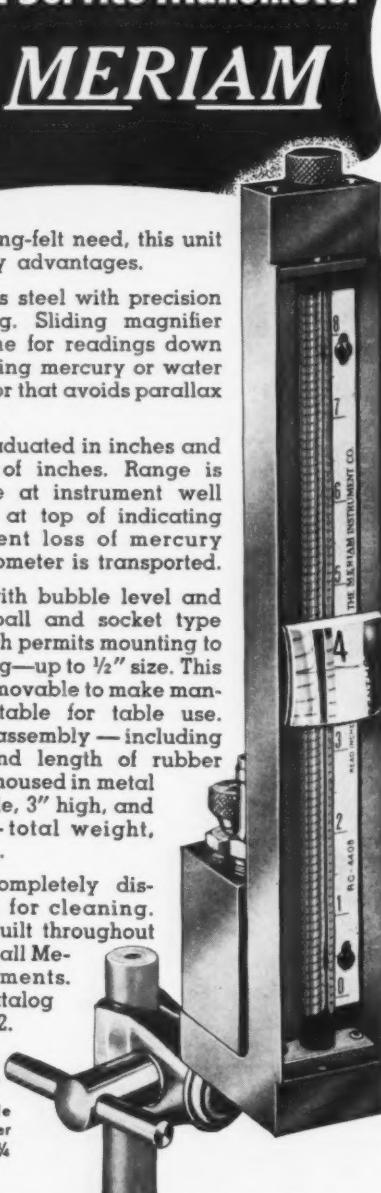
All stainless steel with precision bore tubing. Sliding magnifier with hairline for readings down to 0.02", using mercury or water—and mirror that avoids parallax in reading.

Scale is graduated in inches and twentieths of inches. Range is 0-8". Valve at instrument well and fitting at top of indicating tube prevent loss of mercury when manometer is transported.

Provided with bubble level and universal ball and socket type clamp which permits mounting to meter piping—up to 1/2" size. This clamp is removable to make manometer suitable for table use. Complete assembly—including mercury and length of rubber tubing—is housed in metal case 5" wide, 3" high, and 14" long—total weight, 7½ pounds.

Can be completely disassembled for cleaning. Precision-built throughout—typical of all Meriam instruments. Ask for Catalog Sheet B2862.

Handy Portable Field Manometer weighs only 3½ pounds.



THE MERIAM INSTRUMENT CO.
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MERIAM
Instruments
ESTABLISHED 1911

MANOMETERS, METERS AND GAUGES FOR THE ACCURATE MEASUREMENT OF PRESSURES, VACUUMS AND FLOWS OF LIQUIDS AND GASES

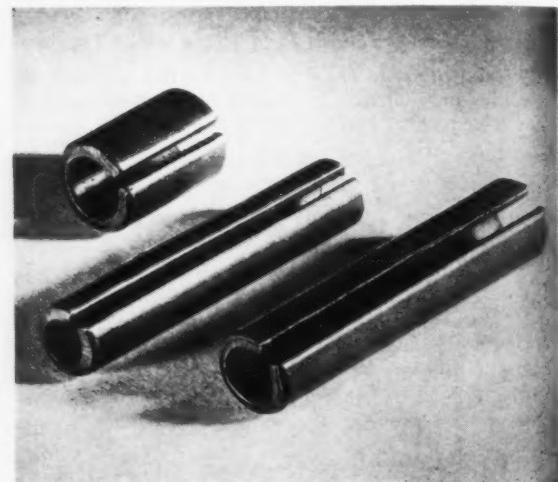
sure spraying equipment, this Vinylite product dries in about 20 min. Resistant to moisture, abrasion and most acid fumes. Will not support combustion. Inherent tensile strength and elasticity enable the coating to withstand severe temperature changes.

Manufacturer: R. M. Hollingshead Corp., Camden, N. J.

E-115018

Self-locking Pin Holds in Place Without Fastening

Features claimed: An all-purpose pressed-fit pin with chamfered ends that can be used as: fastening pins, pivot or hinge pins, cotter keys, shafts, and dowels. Shown below, enlarged. Makes possible greatly simplified industrial de-



sign of equipment such as an ordinary tacker, lubrication pump assembly of a diesel engine, vent window handle on an automobile, or an assembly in a 35-mm. television projector. Thirteen sizes for hole diameters from 5/64 in. to 1/2 in.

Manufacturer: Elastic Stop Nut Corp., Union, N. J.

E-115019

Speed Indicating and Recording Instruments

Features claimed: Redesigned and improved hand-held tachometer indicates rpm. and fpm. speeds, speed fluctuations, and belt slippage. No timing or calculating necessary. Hand tachograph is a portable unit which can take the place of expensive stationary equipment. Combines a special adaptation of the tachometer with a precision recording

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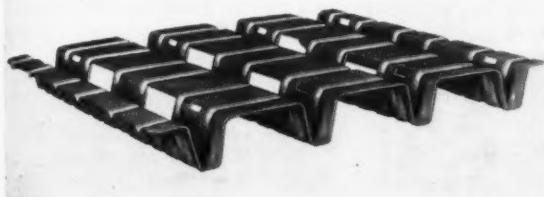
mechanism. Tachograph draws graphic charts of speeds on a traveling paper strip. Records rpm. and fpm. speeds, speed fluctuations, accelerations, decelerations, belt slippage. Accuracy to 0.5% for both machines.

Manufacturer: O. Zernickow Co., New York City.

E-115020

Lift This Pallet from Any Direction

Features claimed: Four-way entry for fork lifts is a feature of the Nesteel Pallet. Perforations are placed conveniently for easy banding or tying a load to pallet. Design is



such that pallets will nest one into another, a space conservation feature. Although light in weight and easily handled by one man, one pallet can easily carry 10 tons without risk. Pallets can't slip when handled by crane. Available in wide variety of strengths and sizes.

Manufacturer: Powell Pressed Steel Co., Hubbard, Ohio.

E-115021

Two or More Colors in a Single Coat of Paint

Features claimed: Evenly distributed colors of Multi-Color produce an attractive broken surface effect. Used for composition boards, wallboards, beaver board, and asbestos board. Standard combinations are: brown and white, tan and white, green-white, light blue-dark blue, and pink-white. Only one coat is necessary. Prime coat necessary only when used on metal. May be sprayed or applied by dip process.

Manufacturer: United Lacquer Mfg. Corp., Linden, N. J.

E-115022

Steel Battery Tray Corrosion Licked

Features claimed: New coating and technique for application protects sheet steel battery trays against action of acid which accumulates outside storage batteries. If surface of battery is scraped, exposing the bare steel, corrosion is limited to area scraped. This results from the tight bond formed between the coating and the metal surface. Coat-

Handy Helper that gives you Power

FOR HAND PIPE TOOLS



Model "400" can be furnished with legs, handy tool tray, feet and all fittings at slight additional cost.

RIDGID Model "400" ...lightest power unit made

One man alone can move this job-tested Model "400" around on the job. Weighs just a little over 100 lbs., gives you plenty of power for hand tool threading, cutting and reaming jobs. Universal motor — forward, reverse, light socket power. RIDGID 3-jaw chuck in front with chuck wrench ejector; self-centering workholder in rear turns with pipe. Sealed-in lubrication — no oil spillage. Many thousands of Model "400" Power Drives are now in actual service. Buy one at your Supply House.

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THE RIDGE TOOL CO. • ELYRIA, OHIO

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ing can withstand mechanical abuse from blows and abrasion without flaking off. Coating's high insulating quality protects steel trays from corrosion due to leakage of current.

Manufacturer: Electric Storage Battery Co., Philadelphia, Pa.

E-115023

Tungsten Carbide Balls for Sizing of Internal Diameters

Features claimed: Excellent surface finish, good size control, and size uniformity of the finished part are the results



of these tungsten carbide balls which have extreme hardness, high surface finish and compressive strength. Replacement costs are low for these tools because of their long life. Size of internal diameters can readily be controlled within $\pm .0003$ in. Higher accuracies are possible depend-

ing upon uniformity of hardness, surface finish, and size of the unfinished I.D. Furnished in sizes from $1/32$ in. to 3-in. diam. with size tolerances of $\pm .000025$ in., sphericity tolerances of $.000010$ in. and surface finishes of 1 micro in.

Manufacturer: Industrial Tectonics, Inc., Ann Arbor, Mich.

E-115024

Self-Cleaning Rugged Steel Doormat

Features claimed: A permanent all-steel door mat that never clogs, never needs beating, is easy to clean, will not absorb liquids, is built for rugged service. Made of expanded steel electrically welded, finished in rust-resistant gray. Dimensions $24'' \times 16\frac{1}{2}'' \times 1\frac{1}{8}''$. Weighs 12 lbs. Hammerslag Equipment Co., San Francisco, distributors.

Manufacturer: The Ballymore Company, Wayne, Pa.

E-115025

Any Motor Speed You Like with a Twist of the Knob

Features claimed: This ACA motor can be driven at any speed within its rating. It is rated at $5/1.67$ hp., $2500/833$ rpm., 440 volts. A knob on top of the motor enables the operator to change speeds quickly and accurately.

Manufacturer: General Electric Co., Schenectady, N. Y.

E-115026

Metallic Coated Electrode Results in Soft Welding Arc

Features claimed: Ranite No. 4 Electric leaves a slag-free deposit. For a rod of this type, there is a minimum

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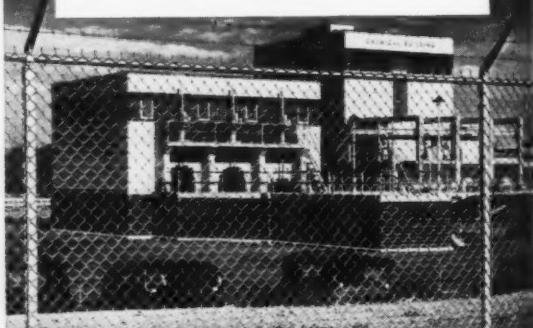
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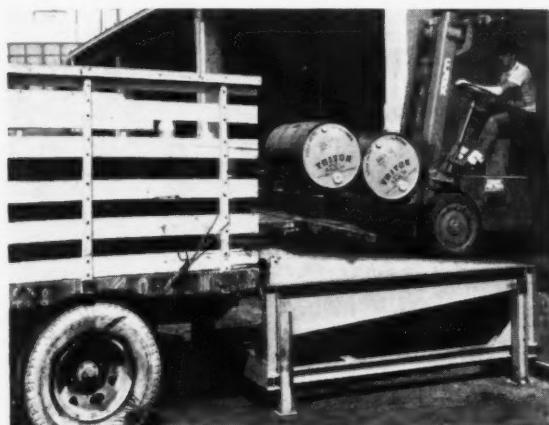
tendency to check. The core wire is of high alloy cast material. Special coating further increases the alloy content of weld. Operating characteristics are unusually smooth. A soft arc results on AC or DC, either straight or reversed polarity. This 18-in. electrode can be gripped anywhere along the rod length; it is not necessary to grip the rod in the center or at the end.

Manufacturer: Rankin Mfg. Co., Los Angeles, Calif.

E-115027

Loading Ramp with Hydraulic Control Solves a Problem

Features claimed: Ramp moves into place between truck and loading platform and adjusts to any level or position. Cannot shift or collapse under load. Hydraulic operation eliminates manual lifting or moving of dock boards. Spring



counter-balancing places a minimum amount of weight on truck. Dock floats with truck while loading or unloading. Extra heavy welded steel frame cannot be damaged by impact of heaviest trucks.

Manufacturer: Green-Penny Co., Los Angeles, Calif.

E-115028

Automatic Circuit Breaker on This Interlock Receptacle

Features claimed: Receptacle has a positive, safety cam lever which locks cord caps securely in the receptacle. This makes it impossible to remove the cord while the current is on. A flip of the lever breaks the circuit while allowing plugs to be removed from the sockets. Ideal for hazardous locations.

Manufacturer: Panellit, Inc., Chicago.

28 Years of Successful use in treating burns!

KEEP KIP HANDY

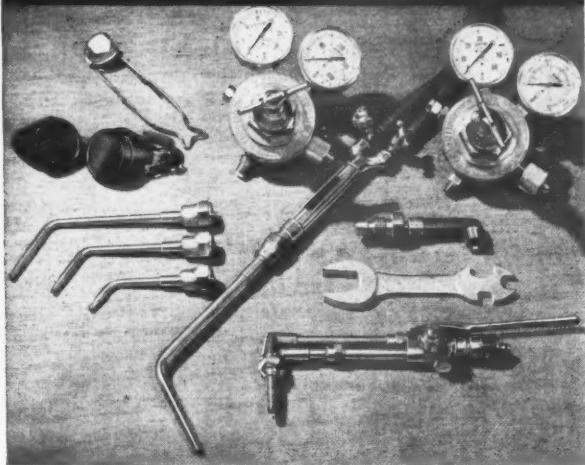
Easy spreading antiseptic ointment. Packed in tubes and tins. In liquid form, too—Kip Antiseptic Oil (with benzocaine).

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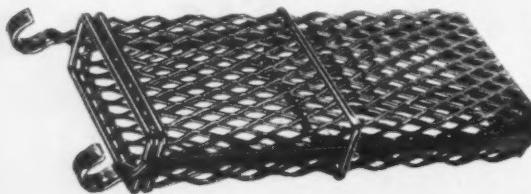
VICTOR EQUIPMENT COMPANY

3821 Santa Fe Ave. 844 Folsom Street 1312 W. Lake St.
LOS ANGELES 58 SAN FRANCISCO 7 CHICAGO 7

E-115029

Anode Baskets Salvage Nickel Scrap

Features claimed: These insulated anode baskets have welded steel cores and are completely coated with semi-hard rubber. They suspend from the anode rail and new anodes are suspended inside the baskets with nickel scrap (butts, sword ends, and pieces of nickel that are normally



scrapped) packed tightly around them. These baskets are designed to absorb shock and cutting. Present shortages and greater impending shortages of nickel emphasize the value of reclaiming scrap wherever possible. Bulletin 100 gives complete information.

Manufacturer: Automotive Rubber Co., Inc., Detroit.

E-115030

Spiral Blade Cuts Up, Down, Sidewise

Features claimed: Spiral Blade Coping Saw cuts materials like wood, rubber, leather, felt, plastics, plywood, bakelite, nails, screws, aluminum, and similar materials. Cuts in any direction with equal ease, whether up, down, or sideways. Special spiral blade prevents chipping or burring, and cuts tubing without tearing. Specially designed for safety.

Retail price is \$1.00, two extra blades included. Additional blades three for 25 cents.

Manufacturer: Dock's Tools, Los Angeles.

E-115031

No More Messy Shop Data

Features claimed: Factory records, shop orders, blueprints, and production data can be posted and passed from department to department and always remain new, spotless



and clearly readable. Just slip documents easily into V.P.D. transparent plastic holders, made with sturdy, highest grade, 5 to 20-pt. cellulose acetate. Available with leatherette backings and bindings with one or both sides transparent.

Manufacturer: Joshua Meier Co., Inc., New York City.

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speeds production

because you can move materials much quicker. Easy one-man operation handles loads up to 6 tons . . . frees manpower for other assignments. This worm-drive electric hoist performs quietly and economically. Savings accumulated with an ElectroLift will more than pay for its installation. Complete details on the model that suits your capacity, speed and plant layout needs will be supplied by your nearby ElectroLift representative, listed in the classified telephone directory. Or write direct to:



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823 Mateo Street
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30 Church Street, New York 7, N. Y.

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plus . . .

10 times higher abrasion resistance, much higher chemical resistance . . . Sureseal Synthetic Rubber is miles ahead on all counts. That's why Sureseal Gloves give you longer wear, greater hand safety, much lower glove costs.

For an extra margin of safety, extra protection against dermatitis, get Sureseal Gloves with Surety's patented Turn-Cuff . . . cuff turned up prevents liquids from running onto arms or inside gloves, cuff turned down gives two-inch longer protective gauntlet.

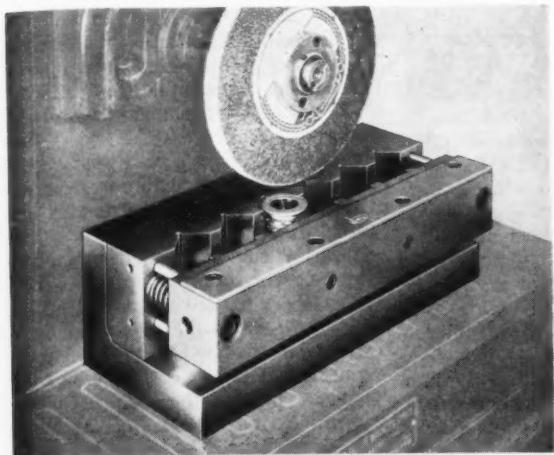
Ask your distributor about Sureseal Gloves . . . or write direct.

THE
SURETY
RUBBER CO.
DEPT. A.
CARROLLTON, OHIO

WESTERN DIVISION
544 Market Street
San Francisco 4

Gang Vises for Precision Grinding of Small Parts

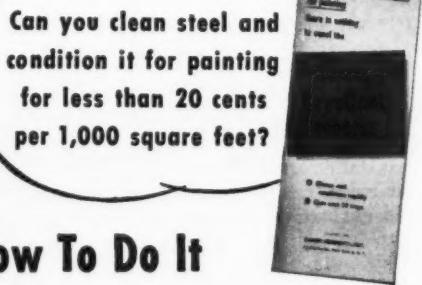
Features claimed: Vise models incorporate patented equalizing blades which automatically compensate for differences in work tolerances and eliminate "toeing-in" of



undersize parts. Both three-position and six-position models can be used on magnetic or non-magnetic chucks. Vise holds work in central position, thus making it possible to "flop" the fixture for grinding opposite sides without additional adjustments. For end grinding, vise is positioned as shown in the accompanying photograph. V-block vise face provided to meet users' specifications.

Manufacturer: Dery Tool & Die Co., Pine Meadow, Conn.

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Tells How To Do It**



WITH minimum equipment...in minimum time... at minimum cost . . . the OAKITE CrysCoat PROCESS* cleans metal surfaces and prepares them for painting . . . prevents corrosion before and after the metal is painted.

*Reg. U.S. Pat. Off.

FREE Write to Oakite Products, Inc., 1001 E. First St., Los Angeles, or 681 Market St., San Francisco, Calif., for Folder F7642. This 8-page illustrated leaflet describes 19 advantages of the OAKITE CrysCoat PROCESS and lists 10 ways in which it cuts the cost of cleaning and preparing for painting.

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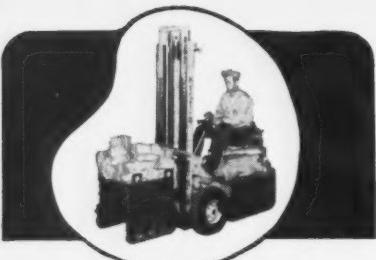


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Vapor alone now stops rust of brake drums shipped overseas.

Oil slushing eliminated . . . greaseproof paper eliminated! Now that revolutionary Angier VPI Wrap protects many parts for these famous fork lift trucks, MORE than packaging materials are saved! *Packaging TIME is substantially reduced!* "Cleaning" costs are saved for Hyster's customers, too, because VPI Wrap is simply removed and rust-free parts are ready for use! "Overseas air or parcel post shipments are completely protected by VPI," says Hyster. "During wet winter months, when there is a variance in temperature, many domestic shipments are VPI protected. Parts are merely wrapped in Angier VPI. No special packaging technique is necessary. This saves time and expense in packaging parts."

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READING GUIDE FOR WESTERN MANAGEMENT

A service for all management levels . . . current literature surveyed and appraised by the faculty of the School of Management, Golden Gate College

Surveys, Polls and Samples: Practical Procedures

By Mildred Parten, Ph.D., Harper & Brothers, New York, 1950, \$5.00.

To the average reader (who has been libeled as "way below the average") this compendious tome may bring to mind the little girl whose Xmas gift from a well-meaning but unperceptive Uncle was a handsome book on penguins. "Thanks for the nice, big book," the little girl wrote. "It tells me more about penguins than I want to know."

However, if you are interested in a complete run-down on the entire field covered by the title, this volume is for you. As such, it is a useful contribution to a new "science" which, despite many growing pains and vicissitudes, has definitely proved its value in our complex society. Indeed, this is intended to be a textbook and manual, so that it is proper to consider it only in that light, rather than as something designed for general reading.

An opening chapter outlines the historical development of social surveys and polls in the United States—including what happened and what was learned as a result when some of the widely-publicized pollsters got so far off base in the recent presidential election forecasts.

Thereafter, detailed information and guidance is given on such aspects as planning procedures, methods of securing information, organization and personnel of the questionnaire, constructing the sample, and evaluation of the material secured.

Reviewed by:
BROOKS DARLINGTON
Lecturer in Public Relations

Practical Report Writing

By Selby S. Santmyers, International Textbook Company, Scranton, Pa., 1950, \$2.75.

Some day there may appear a just-right-for-all-purposes book on report writing. It will tell the business man, the engineer, and the accountant how to write a good report—in simple, everyday language, and without the musty academic aroma with which most of such titles are thoroughly scented. And it will probably be written by a consultant who makes his living through well-written reports.

This book has the proper title (*Practical Report Writing*) and it is written by a consultant (industrial relations).

But it falls far short of its purpose: "... to give to those who must write reports confidence that they can write such reports in a manner that will produce the desired effect."

Mr. Santmyers gives five stages for preparing reports: gathering the material; sorting, studying, arranging, and analyzing; putting the plan in outline form; writing the rough draft; and rewriting, correcting, and preparation of the report for final typing. With the first two stages the author does considerable shadow boxing but his opponent eludes him entirely. The third stage, "putting the plan in outline form," is fairly good. But the author leans too heavily on the outline as the easy path to good writing. He bombards the reader (writer?) paragraph after paragraph on the great significance of this device. The fourth and fifth stages are adequate—though they contribute very little that is new. Although his examples are fresh, many are ill-chosen—some quite inaccurate.

Actually, what the author has written is a fairly acceptable handbook for the report writer. It is assured that those who read the book are experienced writers to begin with; it merely supplies some pretty good ideas on format and style.

Reviewed by:
ROY W. POE
Lecturer in Business Writing

Briefer Guides From The Management Library

New Social Security Requirements

Research Institute of America, New York, Analysis 75, 1950.

Here is a complete guide to the Social Security Law as amended in 1950. It analyzes the changes in coverage, benefits, wage base, and tax rates, and shows how companies are affected by these changes. Methods of reducing higher tax costs are presented.

Increasing Package Effectiveness At The Retail Level

American Management Association, New York, Packaging Series No. 32, 1950.

Includes: The role of packaging in introducing a new product. A panel session on increasing package effectiveness at the retail level.

The Atomic Era—Second Phase

Business Week, July 8, 1950, p. 58.

Is the Atomic Energy Commission on top of its job? Is the hydrogen

bomb worth building? Will industry be getting power from the atom soon? These are some of the questions explored in this fourth annual Report to Executives on Atomic Energy.

Climbing the Executive Ladder

By G. J. Kienzle and E. H. Dare, McGraw-Hill Book Co., Inc., New York, 1950, \$2.95.

The authors present a self-training course in problems of business and human relations. Part I deals with methods of study, personality building, and the qualifications of a good executive. Part II is devoted to human relations. Part III deals with communications: the writing of letters and reports, public relations, and the application of ideas in business.

The Organization of Industrial Scientific Research

By C. Mees and J. A. Leermakers, McGraw-Hill Book Co., Inc., New York, 1950, \$5.00.

This book is a completely revised edition covering all steps in the organization and operation of an industrial research laboratory. It analyzes the position of the laboratory in a company, outlines the duties of the director, and examines such topics as personnel, salary administration, supplies and services.

Handbook on Pensions

Studies in Personnel Policy, No. 103, National Industrial Conference Board, Inc., New York, 1950.

Here is a comprehensive report covering the basic structure of pension plans, types of funding, bargaining on pensions, and administration of pension programs. An important part of the study is the complete text of a number of recently negotiated pension plans.

Management Action to Reduce the Cost of Selling

American Management Association, New York, General Management Series No. 147, 1950.

Includes: Management action for meeting current problems. Marketing problems and opportunities for management. Cost reduction—Machines, methods, men?

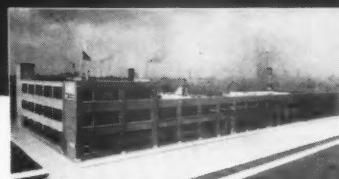
The Federal Government and Education

By Hollis P. Allen, McGraw-Hill Book Co., Inc., New York, 1950, \$4.00.

This book is the result of an intensive study prepared for the Hoover Commission Task Force on Public Welfare. The author analyzes all federal activities in education, discusses federal policy regarding activities and organization in education, and suggests changes in these activities for the public interest.



The new Binks Los Angeles Plant



Home Office and Plant, Chicago



Plant No. 2, Chicago

Above: To better serve the rapidly expanding industrial West, Binks recently opened this new plant at 4915 Pacific Blvd., Los Angeles. Light manufacturing, assembly and warehousing of Binks spray painting equipment and cooling towers will be done here for 7 western states.

Right (top): Home Office and Plant, Chicago, which houses executive offices, major manufacturing facilities, Binks School, and Research Laboratories. Right (bottom): Plant No. 2, Chicago, fabricates and assembles spray booths and cooling towers.

TO GIVE YOU better finishing equipment AND SERVICE

More and more manufacturers are finding that modern finishing methods, utilizing up-to-the-minute equipment, can reduce their production costs and improve the quality of their products...can help them hold the price line and meet increasing competition.

As a result, the demand for Binks equipment (long regarded as tops by experts in all fields of manufacture) has grown steadily...and, to give the service deserved by Binks customers, the Company's production facilities, too, have grown.

First, extensions were built on the Home Plant, then came the addition of new plants in Chicago and Los Angeles. But, behind this solid growth has been a triple idea: to make a better product for you...to help you reduce your finishing costs...to give you better engineering and product service.

A Binks finishing expert will gladly call at your plant to discuss ways in which you can improve your finishing and reduce your production costs. There is no charge for this service. Just drop a line to the address below, or to your nearest Binks Office.

"The only excuse for expansion
is to improve customer service"

Burke B. Reche
President

Binks

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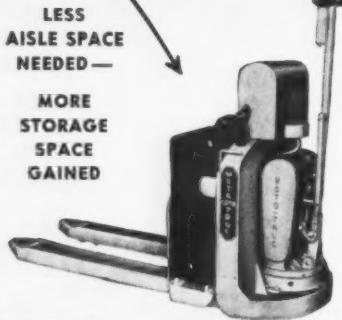


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walkie trucks.

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 AISLE SPACE
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 MORE
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 SPACE
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Industry is rapidly turning to these shorter trucks because they go more places and use only a few cents worth of power per 8-hr. day.

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Advertising

Title: "The Big Pitch."

Subject: A film dramatically depicting the profession of advertising as a vital force in the development and advancement of the American way of life.

Length: 20 minutes.

Supplementary information: 16mm. sound color film. Available at cost for sponsorship by advertising clubs and associations, media, agencies and advertisers.

Available from: Raphael G. Wolff Studios, 1714 N. Wilton Place, Hollywood 28, Calif.

Packaging and Shipping

Title: "The Living Jewel."

Subject: Story of the growing, propagation and the use of the Gardenia. It also shows the method of tailoring and packaging and shipping the flowers to various parts of the country.

Length: 25 minutes.

Supplementary information: 16mm. sound color film.

Available from: E. W. McLellan Company, 174 Fifth Street, San Francisco 3, Calif. Give name of club or group, probable size of audience, and date film is desired.

Floor Care

Title: "Facts About Floor Care—Rubber and Asphalt Tile" and "Facts About Floor Care—Wood Floors."

Subject: Colored slides, accompanied by sound record, containing recommendations for finishing and maintaining these types of floors.

Length: Each 15 minutes, each series.

Supplementary information: Color sound slides, 32mm. in length.

Available from: S. C. Johnson & Son, Inc., 44 Berry Street, San Francisco 7, Calif.

Conducting a Meeting

Title: "How Not To Conduct a Meeting."

Subject: Lemuel Q. Stoopnagel humorously illustrates many of the things to be avoided in planning and conducting a meeting.

Supplementary information: 16mm. sound motion picture. No charge other than transportation.

Length: 10 minutes.

Available from: General Motors Corporation, 507 San Francisco Bank Bldg., 405 Montgomery Street, San Francisco 4, Calif.

Coal

Title: "The Magic of Coal."

Subject: A film showing most phases of the interesting American coal mining industry.

Supplementary information: 16 mm. sound film. No charge for use.

Length: 18 minutes.

Available from: Bituminous Coal Institute, Southern Building, Washington 5, D.C.

Lumber

Title: "Lumber for Homes."

Subject: An absorbing pictorial story of the manufacture of West Coast lumber and its use in home building.

Length: 21½ minutes.

Supplementary information: 16mm. sound

color film. No charge except transportation one way. No projector furnished. Suitable for adult audiences, schools, etc.

Available from: West Coast Lumbermen's Association, 1410 S.W. Morrison Street, Portland 5, Oregon.

Construction

Title: "Vermiculite, The Wonder Mineral."

Subject: Discusses the uses of vermiculite in the construction field, in concrete, plaster, loose-fill insulation, and acoustical insulation.

Supplementary information: 16mm. sound film.

Length: 18 minutes.

Available from: D. McEdwards, Vermiculite Institute, 208 South LaSalle Street, Chicago 4, Illinois.

Safety

Title: "Safe As You Think."

Subject: This film stresses the need for "safety consciousness" in the minds of all of us, dramatizing in a unique way the ridiculous chances we all take every day just to save a few seconds.

Supplementary information: Recommended only for high school and adult audiences. 16mm. sound film. No charge other than transportation.

Length: 28 minutes.

Available from: General Motors Corporation, 507 San Francisco Bank Bldg., 405 Montgomery Street, San Francisco 4, Calif.

Motion Study

Title: "The Easier Way."

Subject: This film illustrates the principles of motion study showing how the worker's job is made easier and faster.

Supplementary information: 16mm. sound motion picture. No charge other than transportation.

Length: 13 minutes.

Available from: General Motors Corporation, 507 San Francisco Bank Bldg., 405 Montgomery Street, San Francisco 4, Calif.

Freight Handling

Title: "Freight Handling Safety."

Subject: A new training film showing how to handle and unload freight safely.

Supplementary information: 35 mm. sound slidefilm, and in a 16 mm. film for sound-motion projectors.

Available from: Prices for outright purchase, preview or rental may be obtained on request to National Safety Council, 425 N. Michigan Avenue, Chicago 11, Illinois.

Diesel

Title: "Diesel . . . The Modern Power."

Subject: Here, in a fast-moving film, is an exposition of the principle of the modern Diesel engine, from the first crude use of compression in starting a fire to its place in the world today.

Supplementary information: 16mm. sound film. No charge other than transportation.

Length: 21 minutes.

Available from: General Motors Corporation, 507 San Francisco Bank Bldg., 405 Montgomery Street, San Francisco 4, Calif.

HELPFUL LITERATURE

for the plant operator who wants to keep informed

115033-L

WHAT'S YOUR FASTENER I.Q.?—A 32-page booklet of interesting information on fastener engineering has been published by Russell, Burdsall & Ward Bolt and Nut Co., Port Chester, N.Y., and is available upon request. The technical information is presented in an informal style, with humorous cartoons and the text presented in question-and-answer form. Among the subjects discussed are residual tension, the different stress conditions set up in different types of joints, wrenching torque, the correct proportions of tensile strength and ductility in fasteners, and the relative strengths of fine and coarse threads. This booklet is also available from any RB&W distributor.

115034-L

SMALL PLANT MANAGEMENT—A 499-page guide to modern on-the-job management techniques, published by McGraw-Hill Book Co., 327 West 41st St., New York City, has been prepared under the auspices of the American Society of Mechanical Engineers and shows how small plants fit into the economic picture, how they are set up and operated, and the overall opportunities for small plants both here and abroad. Edward H. Hempel, Editor-in-Chief, and 20 contributing editors, each a nationally recognized authority in his respective field, have pooled their knowledge and

experience to make possible this guide. From the concepts and principles of scientific management to considerations in financial planning—from the legal side of production planning to sales tools and their use—from building employee morale to the know-how rules of machine planning—this book analyzes the many functions that aid in the establishment of efficient and profitable management. Price \$6.00.

115035-L

RADIOLOGICAL LABORATORY—A new 4-page folder is available from New York University College of Engineering at a cost of 10 cents. It describes problems of using radioactive isotopes and is illustrated with photos, discusses hazards, special equipment required, how atomic wastes are handled and gives data on the design and operation of such a laboratory. Address V.W. Palon, Bureau of Public Information, New York University, New York 53, N.Y.

115036-L

4-WAY PALLETS—A new, interesting and colorful folder containing illustrations and descriptions of the many advantageous aspects of 4-way pallets is available for the asking. Simply and graphically outlined, you will find the types of pallets available, their advantages, and the materials handling operations best performed through the use of 4-way pallets. This brochure should prove



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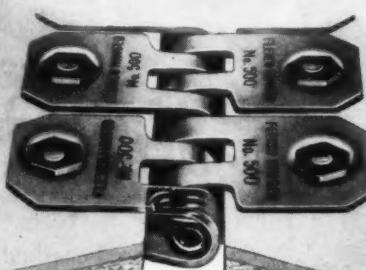
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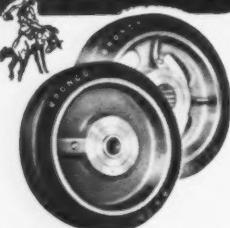
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115037-L

SHOP FACILITIES OF METAL WORKING SPECIALISTS IN THE NORTHWEST—In several picture-crowded pages, the Willamette Iron & Steel Co., Portland 10, Ore., shows the products of its engineering and manufacturing industrial service. Typical products of the machine shop, plate shop, sheet metal shop are illustrated.

115038-L

HOW TO CURE SICK FLOORS—is available without charge from S. C. Johnson and Son, Inc., Racine, Wisconsin. In addition to a pictorial presentation on the correct ways to remedy 16 different types of floor ailments, the handbook contains step-by-step instructions for the normal maintenance of practically every type floor and floor covering. Address your request to J. W. Barrett, Maintenance Products Merchandising Manager.

115039-L

CONTROLLING DUST IN INDUSTRIAL PLANTS—is discussed in a new folder published by Aquadyne Corporation, 220 East 42nd Street, New York 17, N. Y. It tells how you can initiate the 1,001 savings stemming from Dust Control by a simple "wet water" arrangement involving no capital investment. Copies are available upon request.

115040-L

TRIPLE CHECK—is the name of the new Remington Rand folder setting forth the advantages of its Triple Check Automatic filing system for files of 10 drawers or

more. File by letter, control by number, check by color are the basic elements of Triple Check. Copies may be obtained from any Remington Rand branch or by writing to Remington Rand Inc., 315 Fourth Avenue, New York 10, N. Y. Ask for LBV 391.

115041-L

New AIR TRAP BULLETIN issued by Armstrong Machine Works, Three Rivers, Michigan, describes their complete line of air traps. Selection and installation of air traps for automatic drainage of moisture from compressed air intercoolers, after-coolers, receivers, separators and drip points, is covered in some detail. Illustrations of the various Armstrong air trap models, their applications and how they work are covered in other sections. Physical data and list prices are also included. Copies are available upon request.

115042-L

PLANTS, EQUIPMENT AND PRODUCTS—Eaton Metal Products Co., with main offices at 4800 York St., Denver, Colo., and plants at Albuquerque, N. Mex., and Billings, Mont., has published a 27-pg. fully illustrated booklet showing its plant setup and the variety of its metal products. The company specializes in special steel fabrication.

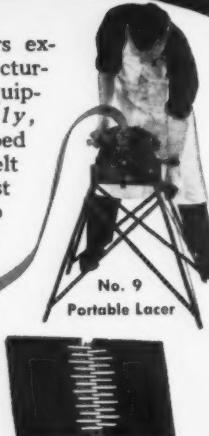
115043-L

REYNOLDS METALS—A booklet describing and picturing operations at its Phoenix, Arizona, Aluminum Extrusion Plant, published by Reynolds Metals Co., 2500 South Third St., Louisville, Ky., is now available without charge. This 12-page, 6 x 9 inch, 3-color booklet divides plant operations at Phoenix into three sections . . . the cast house, handling aluminum from pig to billet; the extrusion department, taking the alu-

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WESTERN INDUSTRY—November, 1950

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PHOTOS



minimum from the billet to the extruded section; and the tube mill, taking the aluminum from tube bloom to tubing. Each section contains a description of the work done, supplemented by illustrations showing the equipment and operations involved.

115044-L

The Rapid-Standard Company has issued a 36-page, 3-color catalog presenting the entire RAPISTAN line of industrial casters, platform trucks, and hand trucks. This new catalog gives complete specifications of the equipment, plus tips on choice of models best suited to various handling problems. A detailed index provides a complete picture of the entire line for easy selection. Copies may be obtained from *The Rapid-Standard Company, Inc., Dept. CT50 342 Rapistan Building, Grand Rapids 2, Mich.* A price list, keyed to the equipment specification chart, is also available upon request.

115045-L

FACTS YOU SHOULD KNOW ABOUT SAVING MONEY is a new booklet in the "FACTS" series now being offered by Better Business Bureau of San Francisco, Ltd. It outlines the principles of saving and describes the various types of savings institutions. All requests should be addressed to *Better Business Bureau, 420 Sutter Street, San Francisco 8, California*, enclosing a stamped, self-addressed envelope and 5 cents for each copy desired.

115046-L

PROTECTING NEW AND OLD METAL SURFACES—A folder has been carefully built around the Longlife product, telling where and how it is used and illustrating the types of surfaces for which it is recommended. Its effects on metal and its

protective qualities are given in detail. This folder, provided by *Flexrock Co., 3674 Filbert St., Philadelphia 4, Pa.*, is a dependable guide to anyone having the responsibility of preserving metal structures—whether metal roofs, metal water tanks, structural steel, metal ducts, metal stacks or any other metal surfaces.

115047-L

NEW MERCURY CLUTCH LITERATURE—The complete line of Mercury Automatic Clutches is described and illustrated in three new bulletins just off the press. Bulletin 216, 8 pages, describes the Mercury Clutch in general, listing and illustrating various applications from air conditioning to washing machines. Bulletin 217, 4 pages, deals with Mercury Automatic Clutches applied to gasoline engines. Bulletin 218, 4 pages, covers electric motor installations. Copies may be obtained by writing *Automatic Steel Products, Inc., Canton, Ohio.*

115048-L

MOTOR STARTERS BULLETIN—Allis-Chalmers motor starters—Type H—for 2,300 to 5,000-volt squirrel cage, wound rotor, synchronous and multi-speed motors are described in 12-pg. bulletin No. 14B-6410A. The air break contactor, Type 256, is described in bulletin No. 14B7303. It is particularly adaptable for applications requiring frequent starting, inching, reversing, plugging or dynamic braking. Bulletins are published by *Allis-Chalmers Manufacturing Co., 1088 S. 70th St., Milwaukee, Wis.*

115049-L

HOW WHEELABRATOR BLAST CLEANING SIMPLIFIES THE RECONDITIONING OF STEEL DRUMS—will be of interest both to those who recondition

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steel drums, and to those who use steel drums. The 4-page bulletin illustrates and describes the equipment and methods of cleaning the interior and exterior of drums as well as drum lids. A free copy of this bulletin may be obtained by writing to *American Wheelabrator and Equipment Corp., S. Byrkit Street, Mishawaka, Indiana.*

115050-L

EQUIVALENT VALVES—A new manual recently compiled by the noted valve engineer H. Gordon Hawes, M.I.T., 1910. This manual embraces 175 pages of data on Equivalent Valves, listing the valves of 18 leading manufacturers. All information has been checked by each of the manufacturers and this listing shows which valves are equivalent, and the design and variations, and is intended as a ready reference for engineers, purchasing agents and engineering personnel who develop specifications or make purchases of valves. The price of the manual is \$15.00, published by the *Hooper Publishing Company, San Francisco, California.* Sent on approval, if desired.

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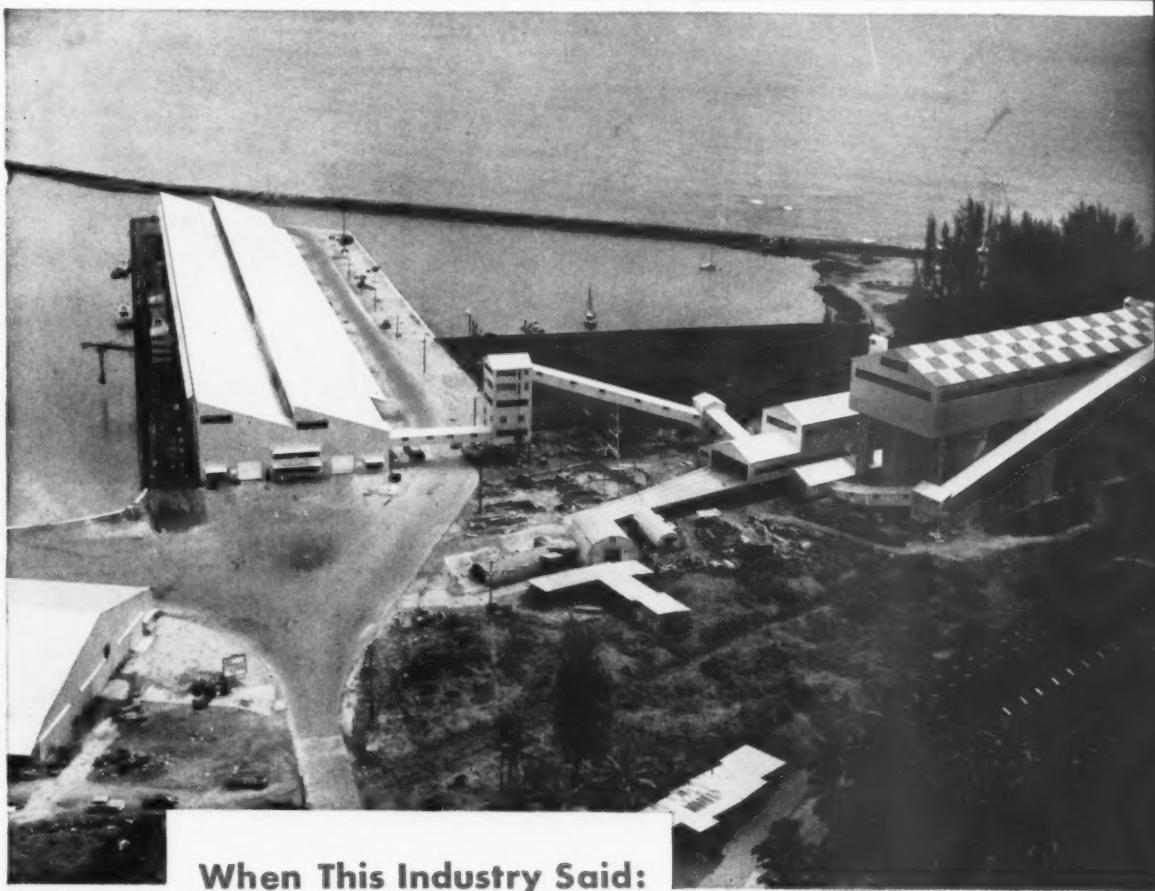
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